

EPA Region 5 Records Ctr.



248107

**SITE ASSESSMENT REPORT
EAGLE PITCHER RESIDENTIAL
EAST ST. LOUIS, ST. CLAIR COUNTY, ILLINOIS**

100-00000000



Tetra Tech EM Inc.

**SITE ASSESSMENT REPORT
EAGLE PITCHER RESIDENTIAL
EAST ST. LOUIS, ST. CLAIR COUNTY, ILLINOIS**

Prepared for:

**U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 5 Emergency Response Branch
c/o Crab Orchard National Wildlife Refuge
8588 Route 148
Marion, IL 62959**

TDD No.:	S05-0104-019
Date Prepared:	18 Jun 01
Contract No.:	68-W-00-129
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1.0 INTRODUCTION

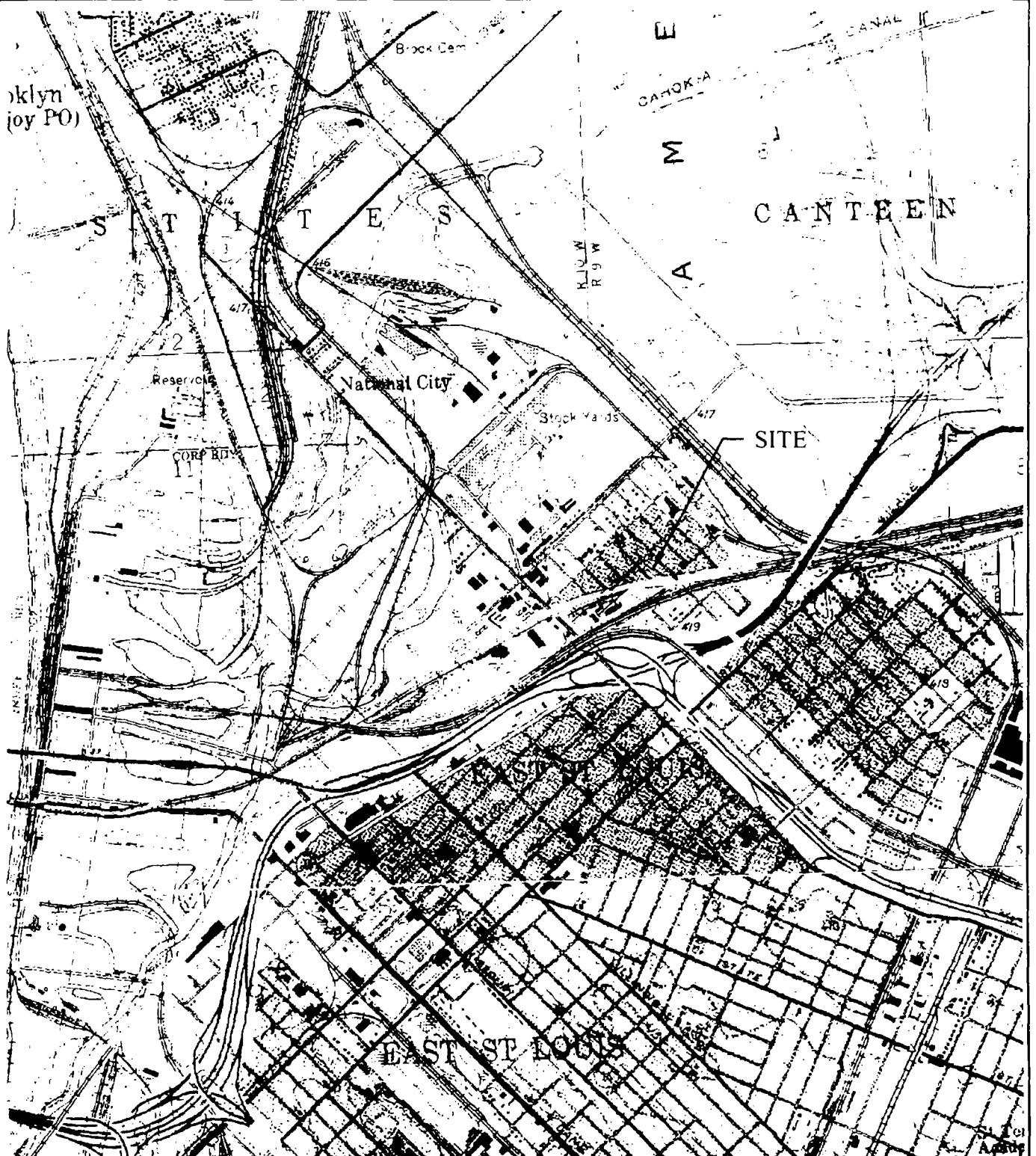
The Tetra Tech EM Inc. (Tt EM) Superfund Technical Assessment and Response Team (START) has prepared this site assessment report in accordance with the requirements of Technical Direction Document (TDD) No. S05-0104-019, which the U.S. Environmental Protection Agency (EPA) assigned to START. The scope of this TDD was to conduct site assessment activities at the Eagle Pitcher Residential site in East St. Louis, Illinois. START was tasked to conduct a site assessment, which involved soil sample collection to delineate the extent of contamination, documentation of on-site activities, including photodocumentation (see Appendix A), analytical data validation (see Appendix B), and preparation of a site assessment report. This site assessment report discusses the site background, site assessment activities, analytical results, and potential site-related threats, and presents a summary.

2.0 SITE BACKGROUND

The Eagle Pitcher Residential site is located in a mixed residential and commercial area in the northwest portion of East St. Louis, Illinois (see Figure 1). The site includes three blocks of residential property located between Bowman Avenue to the northwest, and State Highway 3 to the southwest, 2nd Street to the northeast, and railroad tracks to the southeast (see Figure 2). About 15 residences are located in the study area.. Four schools and one hospital are located within 1 mile of the site.

The site is the former location of a manufacturing business that is believed to have closed in the 1970s. The nature and operations of the business are unknown. The site is being investigated by U.S. EPA Region 5 at the request of the Illinois Department of Public Health (IDPH) under the Mississippi Gateway Initiative Lead Grant to determine whether site-related contaminants pose a threat to human health or the environment.

The IDPH performed a site investigation from 1999 to 2000 that included limited sampling for total lead. The results of the investigation showed lead contamination in soil as high as 5,056 milligrams per kilogram (mg/kg) in the site area (see Appendix C).



EAGLE PITCHER RESIDENTIAL SITE
2ND AND BOWMAN AVENUE
EAST ST. LOUIS, ILLINOIS
TDD NO: S05-0104-019

0 1000 2000
SCALE IN FEET



FIGURE 1
SITE LOCATION MAP

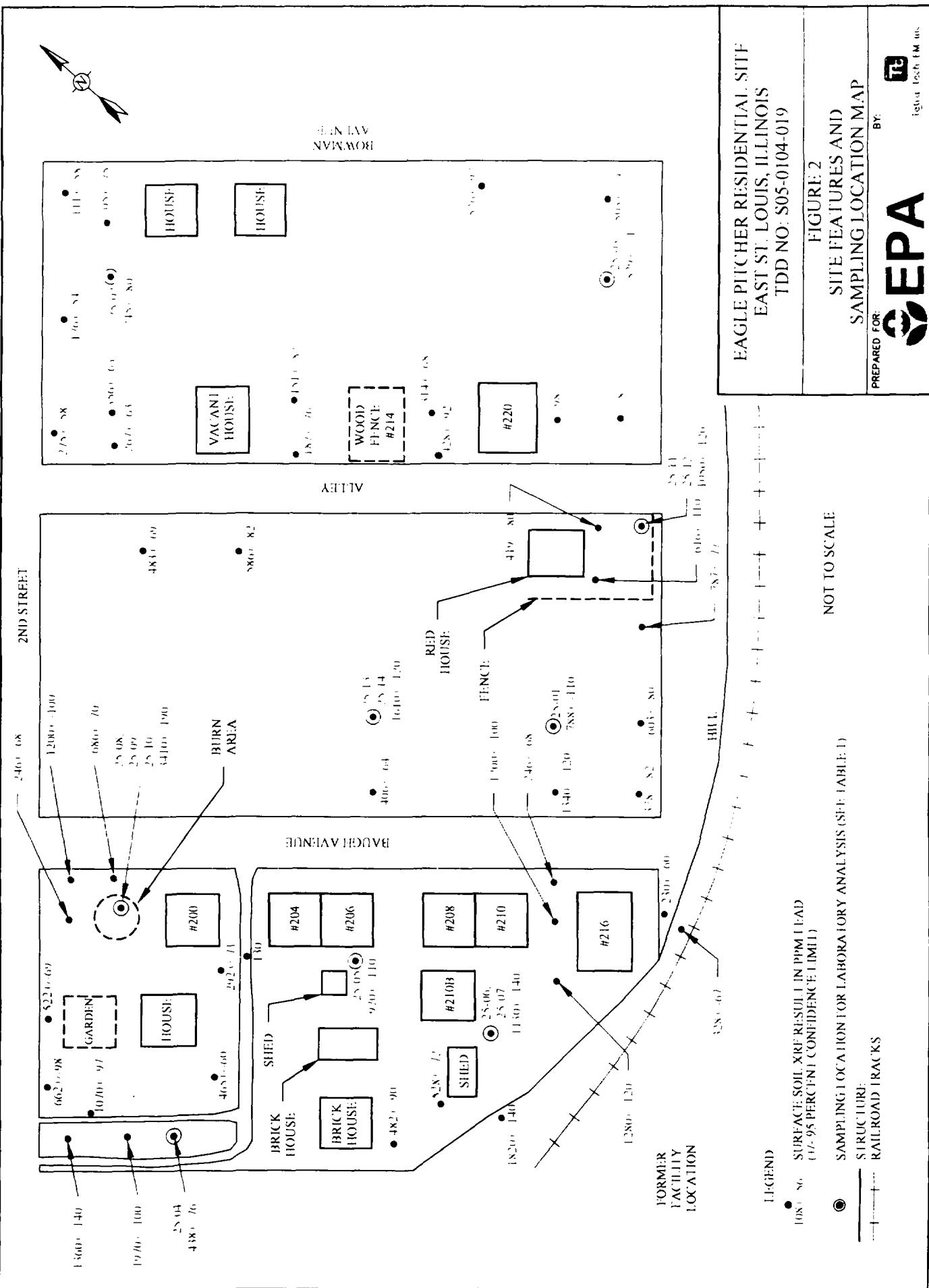
PREPARED FOR:



BY:



SOURCE: MODIFIED FROM USGS, GRANITE CITY AND
CAHOOKIA, ILLINOIS-MISSOURI QUADRANGLES, 1954,
REVISED, 1993



3.0 SITE ASSESSMENT ACTIVITIES

Site activities were conducted at the Eagle Pitcher Residential site on 26 Apr 01. START met with U.S. EPA personnel at the site on 26 Apr 01. The START field crew consisted of Joe Parish, Art Currier, and Brian Schlieger from Tetra Tech, and Keith Hughes from Project Resources, Inc. (PR). U.S. EPA on-scene coordinators (OSC) included Mike Harris and Tom Cook.

START was tasked to document site conditions, collect soil samples, and prepare and submit samples for laboratory analysis. PR was tasked to screen the site with a NITON™ x-ray fluorescent (XRF) spectrometer.

The site was marked for sampling at potentially sensitive areas using survey flags or marking paint. No grid system was established at this site because the size of the area under investigation was too large. XRF spectrometer readings (with 95 percent upper and lower confidence limits) were taken at marked or flagged locations on bare soil that had been cleared of vegetation and humus.

XRF spectrometer readings for lead were compared with the U.S. EPA Region 9 preliminary remediation goal (PRG) for residential soil of 400 mg/kg. As shown in Figure 2, not all locations with high XRF spectrometer lead readings were chosen for sampling. The samples submitted for laboratory analysis and parameters analyzed for were chosen by START to ensure that all three parcels of the site were sampled and to limit the number of samples submitted. In addition, sampling focused more on the southwest parcel of the site because it is located the closest to the former manufacturing facility.

Locations were marked as potential auger sampling points for laboratory analysis. At sampling locations 025-06, 025-08, and 025-09, soil samples were screened with the XRF spectrometer at increments of 6 inches. Screened samples that had contained the highest lead levels from each of these three locations were analyzed for Resource Conservation and Recovery Act (RCRA) metals, toxicity characteristic leaching procedure (TCLP) lead, polychlorinated biphenyls (PCB), semivolatile organic compounds (SVOC), volatile organic compounds (VOC), and pH. All other samples were analyzed for RCRA metals only.

Samples were collected at the ground surface and in increments of 6 inches to a maximum depth of 18 inches below ground surface (bgs) using a stainless-steel auger and homogenized in pie pans for field screening at the locations shown in Figure 2. The auger was decontaminated after collection of each sample using Alconox and water with a final, deionized water rinse. Selected samples were placed in sample containers and submitted for laboratory analysis. No samples were collected from below 18 inches bgs. XRF readings and sampling locations are summarized in Table 1 and shown in Figure 2. Samples were stored on ice and submitted to the Environmetrics, Inc., laboratory in St. Louis, Missouri, on 27 Apr 01.

TABLE 1
SAMPLING SUMMARY

Sampling Date	Time	Sample No.	XRF Spectrometer Reading (ppm)	Description	Requested Analyses
26 Apr 01	1500	025-01	788+/-110	Surface	RCRA metals
26 Apr 01	1507	025-02	745+/-80	Surface	RCRA metals
26 Apr 01	1512	025-03	529+/-71	Surface	RCRA metals
26 Apr 01	1553	025-04	438+/-76	Surface	RCRA metals
26 Apr 01	1555	025-05	970+/-110	Surface	RCRA metals
26 Apr 01	1518	025-06	1,130+/-140	Surface	RCRA metals
26 Apr 01	UK	NS	1,160+/-100	0 to 6 inches bgs at sample No. 025-06 location	NS
26 Apr 01	1517	025-07	2,760+/-200	6 to 12 inches bgs at sample No. 025-06 location	RCRA metals, TCLP lead, SVOCs, VOCs, PCBs, and pH
26 Apr 01	UK	NS	1,970+/-140	12 to 18 inches bgs at sample No. 025-06 location	NS
26 Apr 01	1600	025-08	5,260+/-240	0 to 6 inches bgs	RCRA metals, TCLP lead, SVOCs, VOCs, PCBs, and pH
26 Apr 01	UK	NS	2,310+/-160	6 to 12 inches bgs at sample No. 025-08 location	NS
26 Apr 01	1600	025-10	3,410+/-190	Surface at sample No. 025-08 location	RCRA metals
26 Apr 01	UK	NS	1,160 +/-100	0 to 6 inches bgs at sample No. 025-08 location	NS
26 Apr 01	1630	025-11	1,050+/-120	Surface	RCRA metals
26 Apr 01	1630	025-12	2,480+/-160	6 to 12 inches bgs at sample No. 025-11 location	RCRA metals, TCLP lead, SVOCs, VOCs, PCBs, and pH
26 Apr 01	1700	025-13	1,610+/-120	Surface	RCRA metals
26 Apr 01	1703	025-14	223+/-48	6 to 12 inches bgs at sample No. 025-13 location	RCRA metals, TCLP lead, SVOCs, VOCs, PCBs, and pH

Notes:

+/- = Indicates 95 percent confidence limit for XRF spectrometer reading

bgs = Below ground surface

NS = No sample submitted for analysis

PCB = Polychlorinated biphenyl

ppm = Part per million

RCRA = Resource Conservation and Recovery Act

SVOC = Semivolatile organic compound

TCLP = Toxicity characteristic leaching procedure

UK = Unknown

VOC = Volatile organic compound

XRF = X-ray fluorescent

4.0 ANALYTICAL AND FIELD SCREENING RESULTS

All samples were analyzed for RCRA metals, and selected samples were also analyzed for TCLP lead, pH, VOCs, SVOCs, and PCBs as indicated in Table 1. Samples were selected for TCLP lead, pH, VOC, SVOC, and PCB analyses based on high lead field screening values and at the discretion of START. Table 2 summarizes the detected analytical data corrected to dry weight. The laboratory data were compared to the U.S. EPA Region 9 PRG tables for residential soil.

The analytical data confirm the field screening data that elevated levels of lead are present on site at concentrations above the PRG of 400 mg/kg. The maximum lead concentration detected is 5,771 mg/kg. Although the lead levels exceed the PRG, the TCLP results for lead were well below the regulatory level of 5 milligrams per liter (mg/L) for the four samples analyzed (see Table 2).

As indicated in Table 2, other compounds that exceeded their residential soil PRGs included the polycyclic aromatic hydrocarbons (PAH) benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and dibenz(a,h)anthracene at the J-qualified concentrations of 5.7, 8.5, 5.7, 1.6, and 0.4 mg/kg, respectively. These compounds have residential soil PRGs of 0.62 mg/kg, except for benzo(a)pyrene and dibenz(a,h)anthracene, which have a PRG of 0.062 mg/kg. PAHs, although they have no practical use, are associated with the incineration of organics, a common practice in industrial areas. All of the above PAHs are considered carcinogenic. Arsenic concentrations in all samples submitted for analysis exceeded the cancer endpoint PRG of 0.39 part per million (ppm) but were below the noncancer PRG of 22 mg/kg. The soil was slightly alkaline, having a pH of 6.31 to 7.55 standard units (SU), which is unremarkable. These results are consistent with industrial areas.

XRF screening results show an area of high lead concentrations (exceeding 1,000 ppm) in the southwest parcel of the area under investigation. This parcel is located north of the former manufacturing facility, which is located across the railroad tracks (see Figure 2), suggesting that the contamination is site-related. Elevated levels of lead in the other two parcels and at the perimeter of the site suggest that contaminant migration may have occurred. The extent of contamination cannot be determined because of

TABLE 2
ANALYTICAL RESULTS SUMMARY

Analyte	Sample No. ^{a,b}												
	025-01	025-02	025-03	025-04	025-05	025-06	025-07	025-08	025-10	025-11	025-12	025-13	025-14
Total Arsenic	14.0J	11.2J	9.8J	6.43J	17.4J	17.4J	20.0J	21.9J	16.9J	11.9J	12.1J	14.1J	12.2J
Total Barium	352J	303J	357J	185J	302J	219J	416J	311J	651J	249J	254J	306J	115J
Total Cadmium	4.46	5.87	5.64	2.97J	33.4	2.33J	2.54J	4.76	6.38	5.51	4.74	4.56	<1.47
Total Chromium	33.4	15.1	14.2	11.6	16.2	22.5	24.8	20.3	30.6	22.5	15.9	15.1	7.71
Total Lead	1,020	501	1,100	511	1,163	757	3,394	5,771	4,074	1,609	1,993	1,280	862
Total Mercury	0.8J	0.3J	0.6J	0.7J	2.1J	0.9J	2.0J	0.7J	0.4J	1.5J	1.5J	0.7J	0.3J
Total Selenium	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7
Total Silver	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
TCLP Lead	NA	NA	NA	NA	NA	NA	1.22 mg/L	3.88 mg/L	NA	NA	0.384 mg/L	NA	0.138 mg/L
pH	NA	NA	NA	NA	NA	NA	6.95 SU	7.31 SU	NA	NA	7.55 SU	NA	6.31 SU
Dibenzofuran	NA	NA	NA	NA	NA	NA	<9.249	<4.312	NA	NA	1.0J	NA	<0.856
Fluorene	NA	NA	NA	NA	NA	NA	<9.249	<4.312	NA	NA	0.64J	NA	<0.856
Phenanthrene ^c	NA	NA	NA	NA	NA	NA	9.5	2.3J	NA	NA	8.6	NA	0.33J
Anthracene	NA	NA	NA	NA	NA	NA	2.1J	0.5J	NA	NA	2.2J	NA	<0.856
Carbazole	NA	NA	NA	NA	NA	NA	<9.249	<4.312	NA	NA	0.69J	NA	<0.856
Fluoranthene	NA	NA	NA	NA	NA	NA	14	3.8J	NA	NA	9.975	NA	0.48J
Pyrene	NA	NA	NA	NA	NA	NA	15	4.2J	NA	NA	7.0	NA	0.41J
Benz(a)anthracene	NA	NA	NA	NA	NA	NA	5.7J	1.6J	NA	NA	3.7J	NA	0.22J
Chrysene	NA	NA	NA	NA	NA	NA	6.5J	1.8J	NA	NA	4.0J	NA	0.26J
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	8.5J	2.9J	NA	NA	4.7	NA	0.41J
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	4.1J	1.6J	NA	NA	2.3J	NA	0.15J
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	5.7J	1.7J	NA	NA	3.8J	NA	0.27J
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	1.6J	0.54J	NA	NA	1.0J	NA	0.09J
Naphthalene	NA	NA	NA	NA	NA	NA	<9.249	<4.312	NA	NA	0.93J	NA	<0.856
2-Methylnaphthalene ^c	NA	NA	NA	NA	NA	NA	1.1J	0.47J	NA	NA	1.2J	NA	0.18J
Acenaphthylene	NA	NA	NA	NA	NA	NA	1.2J	0.28J	NA	NA	1.0J	NA	<0.856
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	<9.249	<4.312	NA	NA	0.4J	NA	<0.856
Benzo(g,h,i)perylene ^c	NA	NA	NA	NA	NA	NA	1.8J	0.5J	NA	NA	0.95J	NA	0.092J
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	<0.01	<0.005	NA	NA	0.0039J	NA	0.0022J
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	NA	NA	NA	NA	NA	0.0053J	<0.005	NA	NA	0.0023J	NA	0.0069J
Acetone	NA	NA	NA	NA	NA	NA	0.16	<0.02	NA	NA	<0.02	NA	<0.02
Methylene Chloride	NA	NA	NA	NA	NA	NA	0.047	<0.26	NA	NA	<0.02	NA	<0.048
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	<0.01	0.0026J	NA	NA	0.0039J	NA	0.0074J
Toluene	NA	NA	NA	NA	NA	NA	0.038J	0.0013J	NA	NA	0.0053J	NA	0.021J
Ethylbenzene	NA	NA	NA	NA	NA	NA	<0.01	<0.005	NA	NA	<0.005	NA	<0.005
m- and p-Xylenes	NA	NA	NA	NA	NA	NA	0.010J	0.0024J	NA	NA	<0.005	NA	0.0034J
o-Xylenes	NA	NA	NA	NA	NA	NA	0.0046J	<0.005	NA	NA	<0.005	NA	<0.005

TABLE 2 (Continued)
ANALYTICAL RESULTS SUMMARY

Analyte	Sample No. ^{a,b}												
	025-01	025-02	025-03	025-04	025-05	025-06	025-07	025-08	025-10	025-11	025-12	025-13	025-14
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	0.0059J	<0.005	NA	NA	<0.005	NA	0.002J
Sec-Butylbenzene	NA	NA	NA	NA	NA	NA	<0.01	<0.005	NA	NA	<0.005	NA	<0.005
Naphthalene	NA	NA	NA	NA	NA	NA	<0.02	0.0021J	NA	NA	<0.01	NA	<0.01
Aroclor 1254	NA	NA	NA	NA	NA	NA	<0.046	0.0988	NA	NA	<0.088	NA	<0.043
Aroclor 1260	NA	NA	NA	NA	NA	NA	0.0892	0.0987	NA	NA	0.0546J	NA	<0.043

Notes:

< = Less than reported detection limits

J = Estimated value less than practical quantitation limit

mg/L = Milligram per liter

NA = Not analyzed

PRG = Preliminary remediation goal

SU = Standard unit

TCLP = Toxicity characteristic leaching procedure

a All results are in milligrams per kilogram unless otherwise indicated.

b Shaded values exceed U.S. EPA Region 9 PRGs.

c No PRG established

the large area of the site assessment and the limited nature of the sampling. XRF field screening also showed high concentrations of lead down to 18 inches bgs, the maximum depth of auger sampling; therefore, no conclusion can be made regarding the vertical extent of contamination except that it extends to at least 18 inches bgs in some areas (see Table 1). More data are needed to validate these conclusions.

5.0 POTENTIAL SITE-RELATED THREATS

Paragraph (b)(2) of Title 40 of the *Code of Federal Regulations* (40 CFR), Section 300.415, lists factors to be considered when determining the appropriateness of a potential removal action at a site. The discussion below summarizes the factors applicable to the Eagle Pitcher Residential site.

- **Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants, or contaminants.** Residential properties are located on site, and other sensitive areas such as schools, hospitals, and businesses are located within 1 mile of the site. The site is located within a densely populated major metropolitan area.

During the investigation, START observed that the site has no fences, warning signs, or other barriers to prevent public access.

Sampling at the site shows levels of contamination above the U.S. EPA Region 9 residential soil PRGs for lead, arsenic, and PAHs as discussed in Section 4.0. Exposure pathways consist of (1) direct contact with contaminated soil and (2) inhalation of airborne contaminants through windblown particulates. Contaminant levels and locations also suggest potential contaminant migration through the runoff and air pathways. Because groundwater was not sampled, no conclusion can be drawn about the groundwater pathway from this investigation.

- **Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate.** The East St. Louis area receives a substantial amount of precipitation (approximately 35 inches per year or more). Most precipitation occurs during Spring and Autumn. In addition, thunderstorms common during the Summer greatly accelerate erosion and runoff. All these conditions contribute to the potential for exposure and for contaminants to migrate off site.
- **The unavailability of other federal or state response mechanisms to respond to the release.** IDPH requested assistance from the U.S. EPA Region 5 under the Mississippi Gateway Initiative Lead Grant.

6.0 SUMMARY

The Eagle Pitcher Residential site is located in a mixed residential and commercial area with on-site residences and nearby businesses, hospitals, and schools. The analytical results and field screening data indicate that all three of the site's residential parcels contain soil with elevated lead concentrations exceeding the U.S. EPA PRG for residential soil as discussed. Analytical results show that other compounds are present at concentrations exceeding their PRGs as well. XRF screening results show an area of high lead concentrations (exceeding 1,000 ppm) in the southwest parcel of the area under investigation. This parcel is located north of the former manufacturing facility, which is located across the railroad tracks, suggesting that the contamination is site-related. Elevated levels of lead in the other two parcels and at the perimeter of the site suggest that contaminant migration may have occurred. The extent of contamination cannot be determined because of the large area of the site assessment and the limited nature of the sampling. XRF field screening also showed high concentrations of lead down to 18 inches bgs, the maximum depth of auger sampling; therefore, no conclusion can be made regarding the vertical extent of contamination except that it extends to at least 18 inches bgs in some areas.

This investigation shows that the Eagle Pitcher Residential site poses a direct threat to human health and the environment and therefore meets the criteria for initiating a removal action as outlined in Paragraph (b)(2) of 40 CFR, Section 300.415, for the reasons discussed in Section 5.0.

APPENDIX A
PHOTOGRAPHIC LOG
(Four Pages)



Photograph No.: 1

TDD Number: S05-0104-019

Location: Eagle Pitcher Residential

Subject: Residential backyard along Baugh Avenue

Orientation: North

Date: 26 Apr 01



Photograph No.: 2

TDD Number: S05-0104-019

Location: Eagle Pitcher Residential

Subject: Southwest block portion of site

Orientation: West

Date: 26 Apr 01



Photograph No.: 3

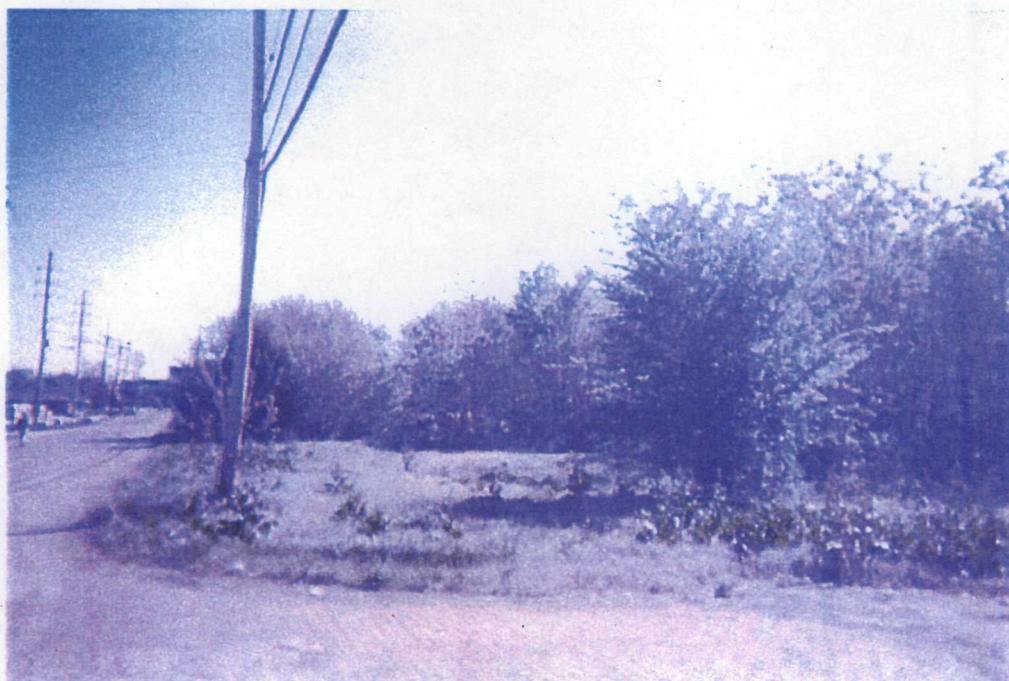
TDD Number: S05-0104-019

Location: Eagle Pitcher Residential

Subject: Central block portion of site

Orientation: Southeast

Date: 26 Apr 01



Photograph No.: 4

TDD Number: S05-0104-019

Location: Eagle Pitcher Residential

Subject: Northwest block portion of site

Orientation: Northeast

Date: 26 Apr 01



Photograph No.: 5

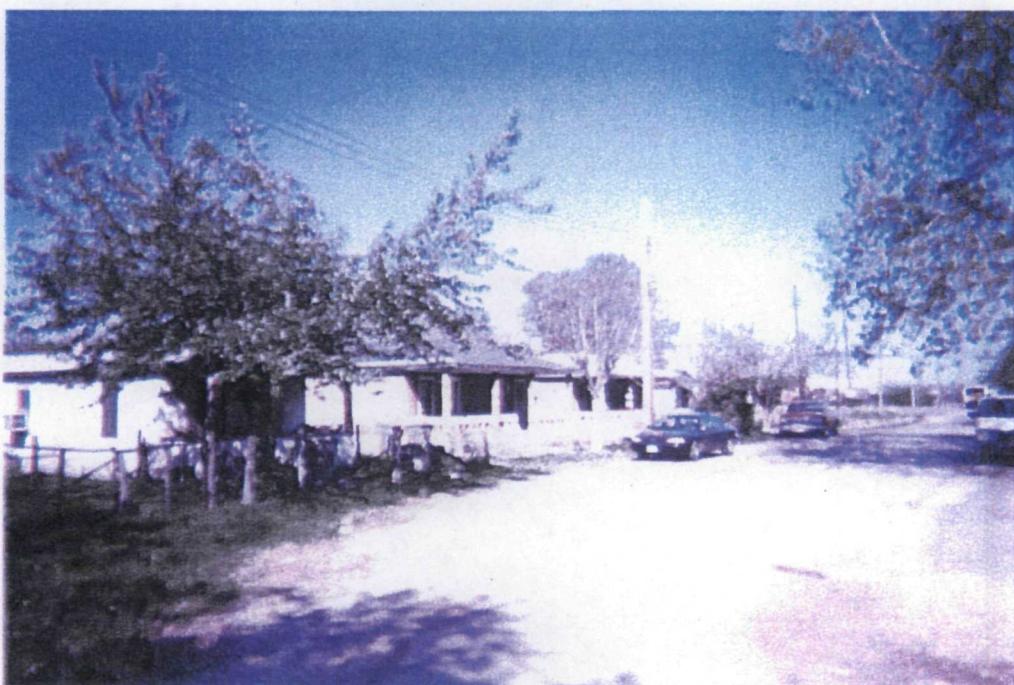
TDD Number: S05-0104-019

Location: Eagle Pitcher Residential

Subject: Northeast block portion of site

Orientation: Northwest

Date: 26 Apr 01



Photograph No.: 6

TDD Number: S05-0104-019

Location: Eagle Pitcher Residential

Subject: Residences in central block portion of site

Orientation: West

Date: 26 Apr 01



Photograph No.: 7

TDD Number: S05-0104-019

Location: Eagle Pitcher Residential

Subject: Family at #210 Baugh Avenue

Orientation: South

Date: 26 Apr 01



Photograph No.: 8

TDD Number: S05-0104-019

Location: Eagle Pitcher Residential

Subject: Central block portion of site at northwest corner

Orientation: South

Date: 26 Apr 01

APPENDIX B
VALIDATED ANALYTICAL DATA
(49 Sheets)



Tetra Tech EM Inc.

200 E. Randolph Drive, Suite 4700 ♦ Chicago, IL 60601 ♦ (312) 856-8700 ♦ FAX (312) 938-0118

MEMORANDUM

Date: 18 Jun 01

To: Joe Parish, Project Manager, Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) for Region 5

From: Harry Ellis, Chemist, Tetra Tech START for Region 5

Subject: Data Validation for
Eagle Pitcher Residential Site
East St. Louis, Illinois
Analytical Technical Direction Document (TDD) No. S05-0104-025
Project TDD No. S05-0104-019

Laboratory: Environmetrics, Inc. (Environmetrics), St. Louis, Missouri
Work Order No. 9912/5599

Volatile Organic Compound (VOC) Analysis of 4 Soil Samples, Semivolatile Organic Compound (SVOC) Analysis of 4 Soil Samples, Polychlorinated Biphenyl (PCB) Analysis of 4 Soil Samples, Total Metals Analysis of 13 Soil Samples, and Toxicity Characteristic Leaching Procedure (TCLP) Lead Analysis of 4 Soil Samples

1.0 INTRODUCTION

The Tetra Tech START for Region 5 validated VOC, SVOC, PCB, and TCLP lead analytical data for 4 soil samples, and total metals analysis for 13 soil samples collected on 26 Apr 01 during a site assessment of the Eagle Pitcher Residential site in East St. Louis, Illinois. The samples were analyzed under the above-referenced work order by Environmetrics using U.S. Environmental Protection Agency (U.S. EPA) SW-846 Method 8260 for VOC analysis, SW-846 Method 8270 for SVOC analysis, SW-846 Method 8082 for PCB analysis, SW-846 Methods 6010 and 7471 for total metals analysis, and SW-846 Methods 1311 and 6010 for TCLP lead analysis.

The data were validated in general accordance with U.S. EPA's "Contract Laboratory Program National Functional Guidelines for Organic Data Review" dated Oct 99 and "Contract Laboratory Program

Data Validation for
Eagle Pitcher Residential Site
Analytical TDD No. S05-0104-025
Project TDD No. S05-0104-019
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National Functional Guidelines for Inorganic Data Review" dated Feb 94. Organic data validation consisted of a review of the following quality control (QC) parameters: holding times, gas chromatograph/mass spectrometer (GC/MS) instrument performance check, initial and continuing calibrations, blank results, surrogate results, matrix spike and matrix spike duplicate (MS/MSD) sample results, laboratory control sample (LCS) results, internal standard results, and target compound identification. Inorganic data validation consisted of a review of the following QC parameters: holding times, initial and continuing calibrations, blank results, LCS results, and MS/MSD results.

Section 2.0 discusses the results of the organic data validation, Section 3.0 discusses the results of the inorganic data validation, and Section 4.0 presents an overall assessment of the data. The attachment to this memorandum contains Environmetric's summary of analytical results, including START's handwritten data qualifications where warranted.

2.0 ORGANIC DATA VALIDATION RESULTS

The results of START's data validation are summarized below in terms of the QC parameters reviewed. The laboratory performed some of the organic analyses at various dilutions because of the samples' high concentrations of target and nontarget organic compounds. The data qualifiers below were applied to the sample analytical results as appropriate (see the attachment).

- J - The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
- UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- U - The analyte was analyzed for but was not detected above the reported sample quantitation limit.

Data Validation for
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2.1 HOLDING TIMES

All samples were analyzed within the established or recommended holding time limits of (1) 14 days for VOCs and (2) 7 days to extraction and 40 days to analysis from extraction for SVOCs and PCBs.

2.2 GC/MS INSTRUMENT PERFORMANCE CHECK

The bromofluorobenzene instrument performance check met the QC abundance criteria for the VOC analyses. The decafluorotriphenylphosphine instrument check met the QC abundance criteria for the SVOC analyses.

2.3 INITIAL AND CONTINUING CALIBRATIONS

For the VOC and SVOC analyses, the relative standard deviation (RSD) from the initial calibration was within the QC limit of less than or equal to 30 percent for all target compounds. Many of the continuing calibration results for the VOC and SVOC analyses were within the QC limit of less than or equal to 25 percent difference (% D) between the initial calibration relative response factor and the continuing calibration relative response factor. However, the following VOCs had excessive %D results in the continuing calibration associated with sample 025-07: bromomethane; acrolein; acetone; vinyl acetate; methyl-tert-butyl ether; propionitrile; 1,4-dioxane; 2-chloroethylvinyl ether; 4-methyl-2-pentanone; 2-hexanone; 1,2-dichlorobenzene; 1,3-dichlorobenzene; 1,4-dichlorobenzene; and 1,2-dibromo-3-chloropropane. The following VOCs had excessive %D results in the continuing calibration associated with the other three samples: vinyl acetate; methyl-tert-butyl ether; 2-chloroethylvinyl ether; hexachlorobutadiene; and naphthalene. In addition, the SVOCs 2,4-dinitrophenol; 4,6-dinitro-2-methylphenol; and benzidine had excessive %D results in the continuing calibration associated with all four samples. Of these compounds, only naphthalene was detected in the samples. The reporting limits for the nondetected compounds are flagged "UJ" to indicate that they are estimates. Because the

Data Validation for
Eagle Pitcher Residential Site
Analytical TDD No. S05-0104-025
Project TDD No. S05-0104-019
Page 4

naphthalene result is already flagged "J" to indicate that it is an extrapolation below the lowest calibration standard (the sample reporting limit), no further qualification of this result is needed.

For the PCB analyses, all initial and continuing calibration results were within their respective QC limits.

2.4 BLANK RESULTS

For the VOC, SVOC, and PCB analyses, method blanks were run with the analytical batch and in the proper sequence. No target analytes were detected in the blanks at concentrations exceeding the instrument detection limit. However, the VOC method blank contained detectable concentrations of acetone and methylene chloride, two common laboratory contaminants, at concentrations slightly lower than the instrument reporting limit. Similar sample results are flagged "U" to indicate that they are probably laboratory artifacts.

2.5 SURROGATE RESULTS

Recoveries for the surrogates were within the QC limits specified by the laboratory for the VOC and SVOC analyses. For the PCB analysis, recovery of the second surrogate, decachlorobiphenyl, varied from 216 to 4,055 percent in the analyzed samples, well above the QC limits of 26 to 152 percent. Inspection of the chromatograms showed interference from nontarget compounds that may include Aroclor 1268, which contains decachlorobiphenyl. No qualifications are warranted for this irregularity.

2.6 MS/MSD RESULTS

MS and MSD analyses were not performed on samples for VOC, SVOC, or PCB analysis.

Data Validation for
Eagle Pitcher Residential Site
Analytical TDD No. S05-0104-025
Project TDD No. S05-0104-019
Page 5

2.7 LCS RESULTS

An LCS was analyzed along with the samples in each analytical group, and results were within the respective QC limits as specified by the laboratory.

2.8 INTERNAL STANDARD RESULTS

For the SVOC analyses, the area counts for the internal standards were within the QC limits of -50 percent to +100 percent from the calibration standard. In addition, the retention times of the internal standards were within the QC limit of \pm 30 seconds for both VOC and SVOC analyses. However, virtually all of the VOC internal standard area counts were below the QC limit. The laboratory re-analyzed the samples and reported both results. The acceptable results for the surrogate recoveries in this analysis imply that the errors introduced by the internal standard irregularities are relatively minor. The data in the attachment reflect the results whose internal standard counts were closer to the control limits. All positive results are flagged "J" to indicate that they are estimated.

2.9 TARGET COMPOUND IDENTIFICATION

Mass spectra for detected VOCs and SVOCs in samples matched those of the mass spectra for the standards. Nontarget SVOCs were also reported and appeared to be aromatic and alkylaromatic hydrocarbons similar in nature to the detected target compounds. The PCB identifications appear to be accurate. Although a complex pattern is present on the chromatograms, quantitative results from the various peaks and from the two columns are similar. Also, some VOC and SVOC results are flagged "J" by the laboratory because the results are below the laboratory reporting limit, which corresponds to the lowest calibration standard. These qualifications are accepted.

Data Validation for
Eagle Pitcher Residential Site
Analytical TDD No. S05-0104-025
Project TDD No. S05-0104-019
Page 6

3.0 INORGANIC DATA VALIDATION RESULTS

The results of START's data validation are summarized below in terms of the QC parameters reviewed. The laboratory's qualifiers were modified to match those used for the organic data. The data qualifier below was applied to the sample analytical results as appropriate (see the attachment).

- U - The analyte was analyzed for but was not detected above the reported sample quantitation limit.
- J - The analyte was detected. The associated numerical value is the approximate concentration of the analyte in the sample.

3.1 HOLDING TIMES

All samples were analyzed within the holding time limits of 6 months for metals and 28 days for mercury.

3.2 INITIAL AND CONTINUING CALIBRATIONS

Recoveries during the initial and continuing calibrations were within the QC limits of 80 to 120 percent for mercury and 90 to 110 percent for all other metals.

3.3 BLANK RESULTS

Initial calibration blanks, continuing calibration blanks, and preparation blanks were run with each analytical batch. No target metals were detected in the blanks at concentrations above the laboratory reporting limits except for barium in the soil preparation blank. The similar concentration of barium in sample 025-14 is flagged "U" to indicate that it is probably a laboratory artifact.

Data Validation for
Eagle Pitcher Residential Site
Analytical TDD No. S05-0104-025
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Page 7

3.4 LCS RESULTS

An LCS was analyzed with each analytical batch. All LCS results were within QC limits specified by the laboratory.

3.5 MS/MSD RESULTS

MS and MSD analyses were performed on sample 025-01. The lead results were not usable because the unspiked sample contained much more lead than the added spike. Barium recoveries were 83 and 28 percent and mercury recoveries were 44 and 44 percent versus the QC limits for both metals of 75 to 125 percent. All results for barium and mercury are flagged "J" to indicate that they are estimates.

4.0 OVERALL ASSESSMENT OF DATA

The overall quality of the data generated by Environmetrics is acceptable for use as qualified.

ATTACHMENT

ENVIRONMETRICS SUMMARY OF ANALYTICAL RESULTS

(41 Pages)

TETRA TECH EM, INC.
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ATTN: ART CURRIER

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PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL
PO: O1LG-P0026

ENVIRONMETRICS, INC

11401 Moog Driv
St. Louis, MO 6314
(314) 432-055

VOLATILE ORGANIC COMPOUNDS CAPILLARY COL
METHOD 8260IX
PAGE One

SAMPLE ID: 025-07
LAB ID: 9912/5599-007
PARENT ORDER NUMBER: 172862

QUANT FACTOR : 2.00

<u>CAS NUMBER</u>		<u>PRACTICAL QUANTITATION LIMIT</u> <u>µg/Kg</u>	<u>RESULTS</u> <u>µg/Kg</u>
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	20	U
75-01-4	Vinyl chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-04	Trichlorofluoromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	10	5.3J
67-64-1	Acetone	40	160 J
108-05-4	Vinyl Acetate	20	U
74-88-4	Methyl Iodide	10	U
75-15-0	Carbon disulfide	20	U
107-05-1	Allyl Chloride	10	U
75-05-8	Acetonitrile	20	U
75-09-2	Methylene chloride	40	47 U
107-13-1	Acrylonitrile	20	U
1634-04-4	Methyl tert butyl ether	20	U
156-60-5	trans-1,2-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
107-02-8	Acrolein	20	U
156-59-2	cis-1,2-Dichloroethene	10	U
78-93-3	2-Butanone (MEK)	10	U
594-20-7	2,2-Dichloropropane	10	U
107-12-0	Propionitrile	10	U
126-98-7	Methacrylonitrile	10	U
74-97-5	Bromochloromethane	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
563-58-6	1,1-Dichloropropene	10	U
56-23-5	Carbon tetrachloride	10	U
107-06-2	1,2-Dichloroethane	10	U
71-43-2	Benzene	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
80-62-6	Methyl Methacrylate	10	U
123-91-1	1,4-Dioxane	10	J

1456-1234
0

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VOLATILE ORGANIC COMPOUNDS CAPILLARY COL
METHOD 8260IX
PAGE Two

SAMPLE ID: 025-07

LAB ID: 9912/5599-007

PARENT ORDER NUMBER: 172862

QUANT FACTOR : 0.00

<u>CAS NUMBER</u>		<u>PRACTICAL QUANTITATION LIMIT</u> <u>µg/Kg</u>	<u>RESULTS</u> <u>µg/Kg</u>
74-95-3	Dibromomethane	10	U
78-83-1	Isobutyl Alcohol	20	U
75-27-4	Bromodichloromethane	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	20	U J
76-46-9	2-Nitropropane	20	U
108-88-3	Toluene	10	38 J
10061-01-5	cis-1,3-Dichloropropene	10	U
97-63-2	Ethyl Methacrylate	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
142-28-9	1,3-Dichloropropane	10	U
591-78-6	2-Hexanone	20	U J
124-48-1	Chlorodibromomethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
630-20-6	1,1,1,2-Tetrachloroethane	10	U
100-41-4	Ethylbenzene	10	U
108-38-3	m&p-Xylene	10	10 J
95-47-6	o-Xylene	10	4.6 J
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-86-1	Bromobenzene	10	U
110-57-6	trans-1,4-Dichloro-2-butene	10	U
96-18-4	1,2,3-Trichloropropane	10	U
103-65-1	n-Propylbenzene	10	U
95-49-8	2-Chlorotoluéne	10	U
108-67-8	1,3,5-Trimethylbenzene	10	U
106-43-4	4-Chlorotoluene	10	U
98-06-6	t-Butylbenzene	10	U
95-63-6	1,2,4-Trimethylbenzene	10	5.93
135-98-8	sec-Butylbenzene	10	U
541-73-1	1,3-Dichlorobenzene	10	U J
99-87-6	p-Isopropyltoluene	10	U
106-46-7	1,4-Dichlorobenzene	10	U J

12-Ju. 001

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VOLATILE ORGANIC COMPOUNDS CAPILLARY COL
METHOD 8260IX
PAGE Three

SAMPLE ID: 025-07
LAB ID: 9912/5599-007
PARENT ORDER NUMBER: 172862

QUANT FACTOR : 0.00

<u>CAS NUMBER</u>		<u>PRACTICAL QUANTITATION LIMIT</u> <u>µg/Kg</u>	<u>RESULTS</u> <u>µg/Kg</u>
95-50-1	1,2-Dichlorobenzene	10	U J
104-51-8	n-Butylbenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U J
120-82-1	1,2,4-Trichlorobenzene	10	U
87-68-3	Hexachlorobutadiene	20	U
91-20-3	Naphthalene	20	U
87-61-6	1,2,3-Trichlorobenzene	10	U
110-75-8	2-Chloroethyl vinyl ether	20	U J

SURROGATE RECOVERY RESULTS

		<u>% RECOVERY</u>
460-00-4	4-Bromofluorobenzene	80
17060-07-0	1,2-Dichloroethane-d4	103
2037-26-5	Toluene-d8	93

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 04/26/01 15:17
DATE RECEIVED: 04/27/01
DATE ANALYZED: 05/08/01
ANALYST: R.R.

12 Jun 01

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VOLATILE ORGANIC COMPOUNDS CAPILLARY COL
 METHOD 8260IX
 PAGE One

SAMPLE ID: 025-08
 LAB ID: 9912/5599-008

<u>CAS NUMBER</u>		PRACTICAL QUANTITATION	
		<u>LIMIT</u> <u>µg/Kg</u>	<u>RESULTS</u> <u>µg/Kg</u>
(1)	75-71-8	Dichlorodifluoromethane	5 U
(1)	74-87-3	Chloromethane	10 U
(1)	75-01-4	Vinyl chloride	5 U
(1)	74-83-9	Bromomethane	5 U
(1)	75-00-3	Chloroethane	5 U
(1)	75-69-04	Trichlorofluoromethane	5 U
(1)	75-35-4	1,1-Dichloroethene	5 U
(1)	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5 U
(1)	67-64-1	Acetone	20 U
(1)	108-05-4	Vinyl Acetate	10 U
(1)	74-88-4	Methyl Iodide	5 U
(1)	75-15-0	Carbon disulfide	10 U
(1)	107-05-1	Allyl Chloride	5 U
(1)	75-05-8	Acetonitrile	10 U
(1)	75-09-2	Methylene chloride	20 26 ✓ U
(1)	107-13-1	Acrylonitrile	10 U
(1)	1634-04-4	Methyl tert butyl ether	10 U
(1)	156-60-5	trans-1,2-Dichloroethene	5 U
(1)	75-34-3	1,1-Dichloroethane	5 U
(1)	107-02-8	Acrolein	10 U
(1)	156-59-2	cis-1,2-Dichloroethene	5 U
(1)	78-93-3	2-Butanone (MEK)	5 U
(1)	594-20-7	2,2-Dichloropropane	5 U
(1)	107-12-0	Propronitrile	5 U
(1)	126-98-7	Methacrylonitrile	5 U
(1)	74-97-5	Bromochloromethane	5 U
(1)	67-66-3	Chloroform	5 U
(1)	71-55-6	1,1,1-Trichloroethane	5 2.6J
(1)	563-58-6	1,1-Dichloropropene	5 U
(1)	56-23-5	Carbon tetrachloride	5 U
(1)	107-06-2	1,2-Dichloroethane	5 U
(1)	71-43-2	Benzene	5 U
(1)	79-01-6	Trichloroethene	5 U
(1)	78-87-5	1,2-Dichloropropane	5 U
(1)	80-62-6	Methyl Methacrylate	5 U
(1)	123-91-1	1,4-Dioxane	5 U
(1)	74-95-3	Dibromomethane	5 U
(1)	78-83-1	Isobutyl Alcohol	10 U

12 Jun 01
 WB

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VOLATILE ORGANIC COMPOUNDS CAPILLARY COL
METHOD 8260IX
PAGE Two

SAMPLE ID: 025-08
LAB ID: 9912/5599-008

<u>CAS NUMBER</u>		PRACTICAL QUANTITATION	<u>RESULTS</u> <u>µg/Kg</u>
		LIMIT <u>µg/Kg</u>	
(1) 75-27-4	Bromodichloromethane	5	U
(1) 10061-02-6	trans-1,3-Dichloropropene	5	U
(1) 108-10-1	4-Methyl-2-pentanone	10	U
(1) 76-46-9	2-Nitropropane	10	U
(1) 108-88-3	Toluene	5	13 J
(1) 10061-01-5	cis-1,3-Dichloropropene	5	U
(1) 97-63-2	Ethyl Methacrylate	5	U
(1) 79-00-5	1,1,2-Trichloroethane	5	U
(1) 127-18-4	Tetrachloroethene	5	U
(1) 142-28-9	1,3-Dichloropropane	5	U
(1) 591-10-0	2-Hexanone	10	U
(1) 124-48-1	Chlorodibromomethane	5	U
(1) 106-93-4	1,2-Dibromoethane	5	U
(1) 108-90-7	Chlorobenzene	5	U
(1) 630-20-6	1,1,1,2-Tetrachloroethane	5	U
(1) 100-41-4	Ethylbenzene	5	U
(1) 108-38-3	m&p-Xylene	5	2.4J
(1) 95-47-6	o-Xylene	5	U
(1) 100-42-5	Styrene	5	U
(1) 75-25-2	Bromoform	5	U
(1) 98-82-8	Isopropylbenzene	5	U
(1) 79-34-5	1,1,2,2-Tetrachloroethane	5	U
(1) 108-86-1	Bromobenzene	5	U
(1) 110-57-6	trans-1,4-Dichloro-2-butene	5	U
(1) 96-18-4	1,2,3-Trichloropropane	5	U
(1) 103-65-1	n-Propylbenzene	5	U
(1) 95-49-8	2-Chlorotoluene	5	U
(1) 108-67-8	1,3,5-Trimethylbenzene	5	U
(1) 106-43-4	4-Chlorotoluene	5	U
(1) 98-06-6	t-Butylbenzene	5	U
(1) 95-63-6	1,2,4-Trimethylbenzene	5	U
(1) 135-98-8	sec-Butylbenzene	5	U
(1) 541-73-1	1,3-Dichlorobenzene	5	U
(1) 99-87-6	p-Isopropyltoluene	5	U
(1) 106-46-7	1,4-Dichlorobenzene	5	U
(1) 95-50-1	1,2-Dichlorobenzene	5	U
(1) 104-51-8	n-Butylbenzene	5	U
(1) 96-12-8	1,2-Dibromo-3-chloropropane	5	U
(1) 120-82-1	1,2,4-Trichlorobenzene	5	U

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PO: O1LG-P0026

VOLATILE ORGANIC COMPOUNDS CAPILLARY COL
METHOD 8260IX
PAGE Three

SAMPLE ID: 025-08
LAB ID: 9912/5599-008

<u>CAS NUMBER</u>		<u>PRACTICAL QUANTITATION</u>		<u>RESULTS</u> <u>ug/Kg</u>
		<u>LIMIT</u> <u>ug/Kg</u>		
(1)	87-68-3	Hexachlorobutadiene	10	U <u>J</u>
(1)	91-20-3	Naphthalene	10	2.1J
(1)	87-61-6	1,2,3-Trichlorobenzene	5	U
(1)	110-75-8	2-Chloroethyl vinyl ether	10	U <u>J</u>

SURROGATE RECOVERY RESULTS

		<u>% RECOVERY</u>
(1)	460-00-4	79
(1)	17060-07-0	108
(1)	2037-26-5	92

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 04/26/01 16:00
DATE RECEIVED: 04/27/01
DATE ANALYZED: 05/07/01
ANALYST: R.R.

HUG
12 June

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INVOICE: 53995

PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL
PO: O1LG-P0026

VOLATILE ORGANIC COMPOUNDS CAPILLARY COL
METHOD 8260IX
PAGE One

SAMPLE ID: 025-12
LAB ID: 9912/5599-011

<u>CAS NUMBER</u>		<u>PRACTICAL QUANTITATION LIMIT</u> <u>µg/Kg</u>	<u>RESULTS</u> <u>µg/Kg</u>
(1) 75-71-8	Dichlorodifluoromethane	5	U
(1) 74-87-3	Chloromethane	10	U
(1) 75-01-4	Vinyl chloride	5	U
(1) 74-83-9	Bromomethane	5	U
(1) 75-00-3	Chloroethane	5	U
(1) 75-69-04	Trichlorofluoromethane	5	3.9J
(1) 75-35-4	1,1-Dichloroethene	5	U
(1) 76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5	2.3J
(1) 67-64-1	Acetone	20	7.0J-B U
(1) 108-05-4	Vinyl Acetate	10	U J
(1) 74-88-4	Methyl Iodide	5	U
(1) 75-15-0	Carbon disulfide	10	U
(1) 107-05-1	Allyl Chloride	5	U
(1) 75-05-8	Acetonitrile	10	U
(1) 75-09-2	Methylene chloride	20	17.1J-B U
(1) 107-13-1	Acrylonitrile	10	U
(1) 1634-04-4	Methyl tert butyl ether	10	U J
(1) 156-60-5	trans-1,2-Dichloroethene	5	U
(1) 75-34-3	1,1-Dichloroethane	5	U
(1) 107-02-8	Acrolein	10	U
(1) 156-59-2	cis-1,2-Dichloroethene	5	U
(1) 78-93-3	2-Butanone (MEK)	5	U
(1) 594-20-7	2,2-Dichloropropane	5	U
(1) 107-12-0	Propionitrile	5	U
(1) 126-98-7	Methacrylonitrile	5	U
(1) 74-97-5	Bromochloromethane	5	U
(1) 67-66-3	Chloroform	5	U
(1) 71-55-6	1,1,1-Trichloroethane	5	3.9J
(1) 563-58-6	1,1-Dichloropropene	5	U
(1) 56-23-5	Carbon tetrachloride	5	U
(1) 107-06-2	1,2-Dichloroethane	5	U
(1) 71-43-2	Benzene	5	U
(1) 79-01-6	Trichloroethene	5	U
(1) 78-87-5	1,2-Dichloropropane	5	U
(1) 80-62-6	Methyl Methacrylate	5	U
(1) 123-91-1	1,4-Dioxane	5	U
(1) 74-95-3	Dibromomethane	5	U
(1) 78-83-1	Isobutyl Alcohol	10	U

HVG

12 JUN 91

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VOLATILE ORGANIC COMPOUNDS CAPILLARY COL
 METHOD 8260IX
 PAGE Two

SAMPLE ID: 025-12
 LAB ID: 9912/5599-011

PRACTICAL QUANTITATION

<u>CAS NUMBER</u>		<u>PRACTICAL QUANTITATION</u>	<u>LIMIT</u>	<u>RESULTS</u>
			<u>µg/Kg</u>	<u>µg/Kg</u>
(1)	75-27-4	Bromodichloromethane	5	U
(1)	10061-02-6	trans-1,3-Dichloropropene	5	U
(1)	108-10-1	4-Methyl-2-pentanone	10	U
(1)	76-46-9	2-Nitropropane	10	U
(1)	108-88-3	Toluene	5	5.3
(1)	10061-01-5	cis-1,3-Dichloropropene	5	U
(1)	97-63-2	Ethyl Methacrylate	5	U
(1)	79-00-5	1,1,2-Trichloroethane	5	U
(1)	127-18-4	Tetrachloroethene	5	U
(1)	142-28-9	1,3-Dichloropropane	5	U
(1)	591-78-6	2-Hexanone	10	U
(1)	124-48-1	Chlorodibromomethane	5	U
(1)	106-93-4	1,2-Dibromoethane	5	U
(1)	108-90-7	Chlorobenzene	5	U
(1)	630-20-6	1,1,1,2-Tetrachloroethane	5	U
(1)	100-41-4	Ethylbenzene	5	U
(1)	108-38-3	m&p-Xylene	5	U
(1)	95-47-6	o-Xylene	5	U
(1)	100-42-5	Styrene	5	U
(1)	75-25-2	Bromoform	5	U
(1)	98-82-8	Isopropylbenzene	5	U
(1)	79-34-5	1,1,2,2-Tetrachloroethane	5	U
(1)	108-86-1	Bromobenzene	5	U
(1)	110-57-6	trans-1,4-Dichloro-2-butene	5	U
(1)	96-18-4	1,2,3-Trichloropropane	5	U
(1)	103-65-1	n-Propylbenzene	5	U
(1)	95-49-8	2-Chlorotoluene	5	U
(1)	108-67-8	1,3,5-Trimethylbenzene	5	U
(1)	106-43-4	4-Chlorotoluene	5	U
(1)	98-06-6	t-Butylbenzene	5	U
(1)	95-63-6	1,2,4-Trimethylbenzene	5	U
(1)	135-98-8	sec-Butylbenzene	5	U
(1)	541-73-1	1,3-Dichlorobenzene	5	U
(1)	99-87-6	p-Isopropyltoluene	5	U
(1)	106-46-7	1,4-Dichlorobenzene	5	U
(1)	95-50-1	1,2-Dichlorobenzene	5	U
(1)	104-51-8	n-Butylbenzene	5	U
(1)	96-12-8	1,2-Dibromo-3-chloropropane	5	U
(1)	120-82-1	1,2,4-Trichlorobenzene	5	U

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123
ATTN: ART CURRIER

ENVIRONMETRICS, INC.

11401 Moog Drive
St. Louis, MO 63146
(314) 432-0550

INVOICE: 53995

PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL
PO: O1LG-P0026

VOLATILE ORGANIC COMPOUNDS CAPILLARY COL
METHOD 8260LX
PAGE Three

SAMPLE ID: 025-12
LAB ID: 9912/5599-011

<u>CAS NUMBER</u>	NAME	<u>PRACTICAL QUANTITATION</u>		<u>RESULTS</u> <u>µg/Kg</u>
		LIMIT	<u>µg/Kg</u>	
(1) 87-68-3	Hexachlorobutadiene	10		U J
(1) 91-20-3	Naphthalene	10		U J
(1) 87-61-6	1,2,3-Trichlorobenzene	5		U
(1) 110-75-8	2-Chloroethyl vinyl ether	10		U J

SURROGATE RECOVERY RESULTS

		% RECOVERY
(1)	460-00-4	76
(1)	17060-07-0	107
(1)	2037-26-5	90

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 04/26/01 16:30
DATE RECEIVED: 04/27/01
DATE ANALYZED: 05/07/01
ANALYST: R.R.

12 Jun 01

TETRA TECH EM, INC.
 11116 SOUTHTOWNE SQUARE, SUITE 303
 ST. LOUIS, MO 63123
 ATTN: ART CURRIER

ENVIRONMETRICS, INC.

11401 Moog Drive
 St. Louis, MO 63146
 (314) 432-055C

INVOICE: 53995
 PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL
 PO: O1LG-P0026

VOLATILE ORGANIC COMPOUNDS CAPILLARY COL
 METHOD 8260IX
 PAGE One

SAMPLE ID: 025-14
 LAB ID: 9912/5599-013

PRACTICAL QUANTITATION

<u>CAS NUMBER</u>		<u>LIMIT</u> <u>µg/Kg</u>	<u>RESULTS</u> <u>µg/Kg</u>
(2) 75-71-8	Dichlorodifluoromethane	5	U
(2) 74-87-3	Chloromethane	10	U
(2) 75-01-4	Vinyl chloride	5	U
(2) 74-83-9	Bromomethane	5	U
(2) 75-00-3	Chloroethane	5	U
(2) 75-69-04	Trichlorofluoromethane	5	2.2J
(2) 75-35-4	1,1-Dichloroethene	5	U
(2) 76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5	6.9 J
(2) 67-64-1	Acetone	20	15.5B 4
(2) 108-05-4	Vinyl Acetate	10	U J
(2) 74-88-4	Methyl Iodide	5	U
(2) 75-15-0	Carbon disulfide	10	U
(2) 107-05-1	Allyl Chloride	5	U
(2) 75-05-8	Acetonitrile	10	U
(2) 75-09-2	Methylene chloride	20	48.5B U
(2) 107-13-1	Acrylonitrile	10	U
(2) 1634-04-4	Methyl tert butyl ether	10	U J
(2) 156-60-5	trans-1,2-Dichloroethene	5	U
(2) 75-34-3	1,1-Dichloroethane	5	U
(2) 107-02-8	Acrolein	10	U
(2) 156-59-2	cis-1,2-Dichloroethene	5	U
(2) 78-93-3	2-Butanone (MEK)	5	U
(2) 594-20-7	2,2-Dichloropropane	5	U
(2) 107-12-0	Propionitrile	5	U
(2) 126-98-7	Methacrylonitrile	5	U
(2) 74-97-5	Bromochloromethane	5	U
(2) 67-66-3	Chloroform	5	U
(2) 71-55-6	1,1,1-Trichloroethane	5	7.4 J
(2) 563-58-6	1,1-Dichloropropene	5	U
(2) 56-23-5	Carbon tetrachloride	5	U
(2) 107-06-2	1,2-Dichloroethane	5	U
(2) 71-43-2	Benzene	5	U
(2) 79-01-6	Trichloroethene	5	U
(2) 78-87-5	1,2-Dichloropropane	5	U
(2) 80-62-6	Methyl Methacrylate	5	U
(2) 123-91-1	1,4-Dioxane	5	U
(2) 74-95-3	Dibromomethane	5	U
(2) 78-83-1	Isobutyl Alcohol	10	U

140 125m \$

TETRA TECH EM, INC.
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ENVIRONMETRICS, INC.

11401 Moog Drive
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(314) 432-0550

INVOICE: 53995
PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL
PO: O1LG-P0026

VOLATILE ORGANIC COMPOUNDS CAPILLARY COL
METHOD 8260IX
PAGE Two

SAMPLE ID: 025-14
LAB ID: 9912/5599-013

<u>CAS NUMBER</u>		<u>PRACTICAL QUANTITATION LIMIT</u> <u>µg/Kg</u>	<u>RESULTS</u> <u>µg/Kg</u>
(2) 75-27-4	Bromodichloromethane	5	U
) 10061-02-6	trans-1,3-Dichloropropene	5	U
(2) 108-10-1	4-Methyl-2-pentanone	10	U
(2) 76-46-9	2-Nitropropane	10	U
(2) 108-88-3	Toluene	5	21 J
(2) 10061-01-5	cis-1,3-Dichloropropene	5	U
(2) 97-63-2	Ethyl Methacrylate	5	U
(2) 79-00-5	1,1,2-Trichloroethane	5	U
(2) 127-18-4	Tetrachloroethene	5	U
(2) 142-28-9	1,3-Dichloropropane	5	U
(2) 591-78-6	2-Hexanone	10	U
(2) 124-48-1	Chlorodibromomethane	5	U
(2) 106-93-4	1,2-Dibromoethane	5	U
(2) 108-90-7	Chlorobenzene	5	U
(2) 630-20-6	1,1,1,2-Tetrachloroethane	5	U
(2) 100-41-4	Ethylbenzene	5	U
(2) 108-38-3	m&p-Xylene	5	3.4J
(2) 95-47-6	o-Xylene	5	U
(2) 100-42-5	Styrene	5	U
(2) 75-25-2	Bromoform	5	U
(2) 98-82-8	Isopropylbenzene	5	U
(2) 79-34-5	1,1,2,2-Tetrachloroethane	5	U
(2) 108-86-1	Bromobenzene	5	U
(2) 110-57-6	trans-1,4-Dichloro-2-butene	5	U
(2) 96-18-4	1,2,3-Trichloropropane	5	U
(2) 103-65-1	n-Propylbenzene	5	U
(2) 95-49-8	2-Chlorotoluene	5	U
(2) 108-67-8	1,3,5-Trimethylbenzene	5	U
(2) 106-43-4	4-Chlorotoluene	5	U
(2) 98-06-6	t-Butylbenzene	5	U
(2) 95-63-6	1,2,4-Trimethylbenzene	5	2.0J
(2) 135-98-8	sec-Butylbenzene	5	U
(2) 541-73-1	1,3-Dichlorobenzene	5	U
(2) 99-87-6	p-Isopropyltoluene	5	U
(2) 106-46-7	1,4-Dichlorobenzene	5	U
(2) 95-50-1	1,2-Dichlorobenzene	5	U
(2) 104-51-8	n-Butylbenzene	5	U
(2) 96-12-8	1,2-Dibromo-3-chloropropane	5	U
(2) 120-82-1	1,2,4-Trichlorobenzene	5	U

TETRA TECH EM, INC.
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INVOICE: 53995
PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL
PO: O1LG-P0026

VOLATILE ORGANIC COMPOUNDS CAPILLARY COL
METHOD 8260IX
PAGE Three

SAMPLE ID: 025-14
LAB ID: 9912/5599-013

<u>CAS NUMBER</u>	<u>PRACTICAL QUANTITATION LIMIT</u> <u>µg/Kg</u>		<u>RESULTS</u> <u>µg/Kg</u>
(2) 87-68-3	Hexachlorobutadiene	10	U J
(2) 91-20-3	Naphthalene	10	U J
(2) 87-61-6	1,2,3-Trichlorobenzene	5	U
(2) 110-75-8	2-Chloroethyl vinyl ether	10	U J

SURROGATE RECOVERY RESULTS

		<u>% RECOVERY</u>	
(2)	460-00-4	4-Bromofluorobenzene	78
(2)	17060-07-0	1,2-Dichloroethane-d4	106
(2)	2037-26-5	Toluene-d8	90

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 04/26/01 17:03
DATE RECEIVED: 04/27/01
DATE ANALYZED: 05/07/01
ANALYST: R.R.

RJS
m Jmp

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ENVIRONMETRICS, INC.

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St. Louis, MO 63146
(314) 432-0550

ATTN: ART CURRIER

INVOICE: 53995

PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

PO: O1LG-P0026

SEMIVOLATILE COMP. BY GC/MS CAPILLARY COLUMN
METHOD 8270
PAGE One

SAMPLE ID: 025-07

LAB ID: 9912/5599-007

PARENT ORDER NUMBER: 172860

<u>CAS NUMBER</u>		<u>QUANT FACTOR :</u>	924.90
		<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULTS</u>
		<u>ug/KG</u>	<u>ug/KG</u>
110-86-1	Pyridine	46245	U
62-75-9	n-Nitrosodimethylamine	9249	U
62-53-3	Aniline	9249	U
111-44-4	Bis(2-chloroethyl)ether	9249	U
95-57-8	2-Chlorophenol	9249	U
108-95-2	Phenol	9249	U
541-73-1	1,3-Dichlorobenzene	9249	U
106-46-7	1,4-Dichlorobenzene	9249	U
95-50-1	1,2-Dichlorobenzene	9249	U
100-51-6	Benzyl alcohol	9249	U
108-60-1	2,2-oxybis(1-Chloropropane)	9249	U
95-48-7	2-Methylphenol	9249	U
67-72-1	Hexachloroethane	9249	U
621-64-7	N-Nitrosodi-n-propylamine	9249	U
106-44-5	4-Methylphenol	9249	U
98-95-3	Nitrobenzene	9249	U
78-59-1	Isophorone	9249	U
88-75-5	2-Nitrophenol	9249	U
105-67-9	2,4-Dimethylphenol	9249	U
111-91-1	Bis(2-chloroethoxy)methane	9249	U
120-83-2	2,4-Dichlorophenol	9249	U
120-82-1	1,2,4-Trichlorobenzene	9249	U
91-20-3	Naphthalene	9249	U
65-85-0	Benzoic acid	9249	U
106-47-8	4-Chloroaniline	9249	U
87-68-3	Hexachlorobutadiene	9249	U
91-57-6	2-Methylnaphthalene	9249	1100J
59-50-7	4-Chloro-3-methylphenol	9249	U
77-47-4	Hexachlorocyclopentadiene	9249	U
88-06-2	2,4,6-Trichlorophenol	9249	U
95-95-4	2,4,5-Trichlorophenol	9249	U
91-58-7	2-Chloronaphthalene	9249	U
88-74-4	2-Nitroaniline	9249	U
208-96-8	Acenaphthylene	9249	1200J
131-11-3	Dimethyl phthalate	9249	U
606-20-2	2,6-Dinitrotoluene	9249	U
83-32-9	Acenaphthene	9249	U

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ATTN: ART CURRIER

INVOICE: 53995

PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

PO: O1LG-P0026

ENVIRONMETRICS, INC.

11401 Moog Drive
St. Louis, MO 63141
(314) 432-0551

SEMIVOLATILE COMP. BY GC/MS CAPILLARY COLUMN
METHOD 8270
PAGE Two

SAMPLE ID: 025-07

LAB ID: 9912/5599-007

PARENT ORDER NUMBER: 172860

QUANT FACTOR : 0.00

<u>CAS NUMBER</u>		<u>PRACTICAL QUANTITATION LIMIT</u> <u>μg/KG</u>	<u>RESULTS</u> <u>μg/KG</u>
99-09-2	3-Nitroaniline	9249	U
51-28-5	2,4-Dinitrophenol	9249	U
132-64-9	Dibenzofuran	9249	U
121-14-2	2,4-Dinitrotoluene	9249	U
100-02-7	4-Nitrophenol	9249	U
86-73-7	Fluorene	9249	U
7005-72-3	4-Chlorophenyl phenyl ether	9249	U
84-66-2	Diethyl phthalate	9249	U
100-01-6	4-Nitroaniline	9249	U
534-52-1	4,6-Dinitro-2-methylphenol	9249	U
86-30-6	N-Nitrosodiphenylamine	9249	U
103-33-3	Azobenzene (1,2-Diphenylhydrazine)	9249	U
101-55-3	4-Bromophenyl phenyl ether	9249	U
118-74-1	Hexachlorobenzene	9249	U
1912-24-9	Atrazine	9249	U
87-86-5	Pentachlorophenol	9249	U
85-01-8	Phenanthrene	9249	9500
120-12-7	Anthracene	9249	2100J
86-74-8	Carbazole	9249	U
15972-60-8	Alachlor	9249	U
84-74-2	Di-n-butyl phthalate	9249	U
206-44-0	Fluoranthene	9249	14000
92-87-5	Benzidine	9249	U
129-00-0	Pyrene	9249	15000
85-68-7	Butyl benzyl phthalate	9249	U
56-55-3	Benz(a)anthracene	9249	5700J
218-01-9	Chrysene	9249	6500J
91-94-1	3,3'-Dichlorobenzidine	9249	U
117-81-7	Bis(2-ethylhexyl)phthalate	9249	U
117-84-0	Di-n-octyl phthalate	9249	U
205-99-2	Benzo(b)fluoranthene	9249	8500J
207-08-9	Benzo(k)fluoranthene	9249	4100J
50-32-8	Benzo(a)pyrene	9249	5700J
193-39-5	Iodo(1,2,3-cd)pyrene	9249	1600J
53-70-3	Dibenz(a,h)anthracene	9249	U
191-24-2	Benzo(g,h,i)perylene	9249	1800J

WE 2 June 8

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
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ENVIRONMETRICS, INC.

11401 Moog Drive
St. Louis, MO 63146
(314) 432-0550

ATTN: ART CURRIER

INVOICE: 53995
PROJECT NO: G9009.E.0104025, EAGLE PITCHER RESIDENTIAL
PO: O1LG-P0026

SEMOVOLATILE COMP. BY GC/MS CAPILLARY COLUMN
METHOD 8270
PAGE Three

SAMPLE ID: 025-07
LAB ID: 9912/5599-007
PARENT ORDER NUMBER: 172860

QUANT FACTOR : 0.00

<u>CAS NUMBER</u>	<u>PRACTICAL QUANTITATION LIMIT</u> <u>µg/KG</u>	<u>RESULTS</u> <u>µg/KG</u>
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SURROGATE RECOVERY RESULTS

		<u>% RECOVERY</u>
321-60-8	2-Fluorobiphenyl	0
367-12-4	2-Fluorophenol	0
4165-60-0	Nitrobenzene-d5	0
4165-62-2	Phenol-d5	0
1718-51-0	p-Terphenyl-d14	0
118-79-6	2,4,6-Tribromophenol	0

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 04/26/01 15:17
DATE RECEIVED: 04/27/01
DATE ANALYZED: 05/07/01
ANALYST: J.K.

TETRA TECH EM. INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ENVIRONMETRICS, INC.

11401 Moog Drive
St. Louis, MO 63146
(314) 432-0550

ATTN: ART CURRIER

INVOICE: 53995

PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

PO: O1LG-P0026

SEMOVOLATILE COMP. BY GC/MS CAPILLARY COLUMN

METHOD 8270

PAGE One

SAMPLE ID: 025-08

LAB ID: 9912/5599-008

PARENT ORDER NUMBER: 172865

QUANT FACTOR :

431.22

<u>CAS NUMBER</u>	<u>PRACTICAL QUANTITATION LIMIT</u> <u>µg/KG</u>	<u>RESULTS</u> <u>µg/KG</u>
110-86-1	Pyridine	U
62-75-9	n-Nitrosodimethylamine	U
62-53-3	Aniline	U
111-44-4	Bis(2-chloroethyl)ether	U
95-57-8	2-Chlorophenol	U
108-95-2	Phenol	U
541-73-1	1,3-Dichlorobenzene	U
106-46-7	1,4-Dichlorobenzene	U
95-50-1	1,2-Dichlorobenzene	U
100-51-6	Benzyl alcohol	U
108-60-1	2,2-oxybis(1-Chloropropane)	U
95-48-7	2-Methylphenol	U
67-72-1	Hexachloroethane	U
621-64-7	N-Nitrosodi-n-propylamine	U
106-44-5	4-Methylphenol	U
98-95-3	Nitrobenzene	U
78-59-1	Isophorone	U
88-75-5	2-Nitrophenol	U
105-67-9	2,4-Dimethylphenol	U
111-91-1	Bis(2-chloroethoxy)methane	U
120-83-2	2,4-Dichlorophenol	U
120-82-1	1,2,4-Trichlorobenzene	U
91-20-3	Naphthalene	U
65-85-0	Benzoic acid	U
106-47-8	4-Chloroaniline	U
87-68-3	Hexachlorobutadiene	U
91-57-6	2-Methylnaphthalene	470J
59-50-7	4-Chloro-3-methylphenol	U
77-47-4	Hexachlorocyclopentadiene	U
88-06-2	2,4,6-Trichlorophenol	U
95-95-4	2,4,5-Trichlorophenol	U
91-58-7	2-Chloronaphthalene	U
88-74-4	2-Nitroaniline	U
208-96-8	Acenaphthylene	280J
131-11-3	Dimethyl phthalate	U
606-20-2	2,6-Dinitrotoluene	U
83-32-9	Acenaphthene	U

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ENVIRONMETRICS, INC

11401 Moog Driv
St. Louis, MO 6314
(314) 432-055

ATTN: ART CURRIER

INVOICE: 53995
PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL
PO: O1LG-P0026

SEMOVOLATILE COMP. BY GC/MS CAPILLARY COLUMN
METHOD 8270
PAGE Two

SAMPLE ID: 025-08
LAB ID: 9912/5599-008
PARENT ORDER NUMBER: 172865

<u>CAS NUMBER</u>		<u>QUANT FACTOR :</u>	0.00
		<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULTS</u>
		<u>µg/KG</u>	<u>µg/KG</u>
99-09-2	3-Nitroaniline	4312	U
51-28-5	2,4-Dinitrophenol	4312	U
132-64-9	Dibenzofuran	4312	U
121-14-2	2,4-Dinitrotoluene	4312	U
100-02-7	4-Nitrophenol	4312	U
86-73-7	Fluorene	4312	U
7005-72-3	4-Chlorophenyl phenyl ether	4312	U
84-66-2	Diethyl phthalate	4312	U
100-01-6	4-Nitroaniline	4312	U
534-52-1	4,6-Dinitro-2-methylphenol	4312	U
86-30-6	N-Nitrosodiphenylamine	4312	U
103-33-3	Azobenzene (1,2-Diphenylhydrazine)	4312	U
101-55-3	4-Bromophenyl phenyl ether	4312	U
118-74-1	Hexachlorobenzene	4312	U
1912-24-9	Atrazine	4312	U
87-86-5	Pentachlorophenol	4312	U
85-01-8	Phenanthrene	4312	2300J
120-12-7	Anthracene	4312	500J
86-74-8	Carbazole	4312	U
15972-60-8	Alachlor	4312	U
84-74-2	Di-n-butyl phthalate	4312	U
206-44-0	Fluoranthene	4312	3800J
92-87-5	Benzidine	4312	U
129-00-0	Pyrene	4312	4200J
85-68-7	Butyl benzyl phthalate	4312	U
56-55-3	Benz(a)anthracene	4312	1600J
218-01-9	Chrysene	4312	1800J
91-94-1	3,3'-Dichlorobenzidine	4312	U
117-81-7	Bis(2-ethylhexyl)phthalate	4312	U
117-84-0	Di-n-octyl phthalate	4312	U
205-99-2	Benzo(b)fluoranthene	4312	2900J
207-08-9	Benzo(k)fluoranthene	4312	1600J
50-32-8	Benzo(a)pyrene	4312	1700J
193-39-5	Ieno(1,2,3-cd)pyrene	4312	540J
53-70-3	Dibenzo(a,h)anthracene	4312	U
191-24-2	Benzo(g,h,i)perylene	4312	500J

12 Juv

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
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INVOICE: 53995

PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

PO: O1LG-P0026

SEMOVOLATILE COMP. BY GC/MS CAPILLARY COLUMN

METHOD 8270

PAGE Three

SAMPLE ID: 025-08

LAB ID: 9912/5599-008

PARENT ORDER NUMBER: 172865

QUANT FACTOR : 0.00

CAS NUMBER

PRACTICAL QUANTITATION

LIMIT

µg/KG

RESULTS

µg/KG

SURROGATE RECOVERY RESULTS

% RECOVERY

321-60-8	2-Fluorobiphenyl	108
367-12-4	2-Fluorophenol	64
4165-60-0	Nitrobenzene-d5	86
4165-62-2	Phenol-d5	67
1718-51-0	p-Terphenyl-d14	113
118-79-6	2,4,6-Tribromophenol	64

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 04/26/01 16:00
DATE RECEIVED: 04/27/01
DATE ANALYZED: 05/07/01
ANALYST: J.K.

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ENVIRONMETRICS, INC.

11401 Moog Drive
St. Louis, MO 63146
(314) 432-0550

ATTN: ART CURRIER

INVOICE: 53995

PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

PO: O1LG-P0026

SEMOVOLATILE COMP. BY GC/MS CAPILLARY COLUMN

METHOD 8270

PAGE One

SAMPLE ID: 025-12

LAB ID: 9912/5599-011

PARENT ORDER NUMBER: 172870

QUANT FACTOR : 440.98

<u>CAS NUMBER</u>		<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULTS</u>
		<u>µg/KG</u>	<u>µg/KG</u>
110-86-1	Pyridine	22049	U
62-75-9	n-Nitrosodimethylamine	4410	U
62-53-3	Aniline	4410	U
111-44-4	Bis(2-chloroethyl)ether	4410	U
95-57-8	2-Chlorophenol	4410	U
108-95-2	Phenol	4410	U
541-73-1	1,3-Dichlorobenzene	4410	U
106-46-7	1,4-Dichlorobenzene	4410	U
95-50-1	1,2-Dichlorobenzene	4410	U
100-51-6	Benzyl alcohol	4410	U
108-60-1	2,2-oxybis(1-Chloropropane)	4410	U
95-48-7	2-Methylphenol	4410	U
67-72-1	Hexachloroethane	4410	U
621-64-7	N-Nitrosodi-n-propylamine	4410	U
106-44-5	4-Methylphenol	4410	U
98-95-3	Nitrobenzene	4410	U
78-59-1	Isophorone	4410	U
88-75-5	2-Nitrophenol	4410	U
105-67-9	2,4-Dimethylphenol	4410	U
111-91-1	Bis(2-chloroethoxy)methane	4410	U
120-83-2	2,4-Dichlorophenol	4410	U
120-82-1	1,2,4-Trichlorobenzene	4410	U
91-20-3	Naphthalene	4410	930J
65-85-0	Benzoic acid	4410	U
106-47-8	4-Chloroaniline	4410	U
87-68-3	Hexachlorobutadiene	4410	U
91-57-6	2-Methylnaphthalene	4410	1200J
59-50-7	4-Chloro-3-methylphenol	4410	U
77-47-4	Hexachlorocyclopentadiene	4410	U
88-06-2	2,4,6-Trichlorophenol	4410	U
95-95-4	2,4,5-Trichlorophenol	4410	U
91-58-7	2-Chloronaphthalene	4410	U
88-74-4	2-Nitroaniline	4410	U
208-96-8	Acenaphthylene	4410	1000J
131-11-3	Dimethyl phthalate	4410	U
606-20-2	2,6-Dinitrotoluene	4410	U
83-32-9	Acenaphthene	4410	U

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
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INVOICE: 53995

PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

PO: O1LG-P0026

ENVIRONMETRICS, INC.

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SEMIVOLATILE COMP. BY GC/MS CAPILLARY COLUMN
METHOD 8270
PAGE Two

SAMPLE ID: 025-12

LAB ID: 9912/5599-011

PARENT ORDER NUMBER: 172870

<u>CAS NUMBER</u>		QUANT FACTOR :	0.00
		PRACTICAL QUANTITATION LIMIT <u>µg/KG</u>	RESULTS <u>µg/KG</u>
99-09-2	3-Nitroaniline	4410	U
51-28-5	2,4-Dinitrophenol	4410	U
132-64-9	Dibenzofuran	4410	1000J
121-14-2	2,4-Dinitrotoluene	4410	U
100-02-7	4-Nitrophenol	4410	U
86-73-7	Fluorene	4410	640J
7005-72-3	4-Chlorophenyl phenyl ether	4410	U
84-66-2	Diethyl phthalate	4410	U
100-01-6	4-Nitroaniline	4410	U
534-52-1	4,6-Dinitro-2-methylphenol	4410	U
86-30-6	N-Nitrosodiphenylamine	4410	U
103-33-3	Azobenzene (1,2-Diphenylhydrazine)	4410	U
101-55-3	4-Bromophenyl phenyl ether	4410	U
118-74-1	Hexachlorobenzene	4410	U
1912-24-9	Atrazine	4410	U
87-86-5	Pentachlorophenol	4410	U
85-01-8	Phenanthrene	4410	8600
120-12-7	Anthracene	4410	2200J
86-74-8	Carbazole	4410	690J
15972-60-8	Alachlor	4410	U
84-74-2	Di-n-butyl phthalate	4410	U
206-44-0	Fluoranthene	4410	997S
92-87-5	Benzidine	4410	U
129-00-0	Pyrene	4410	7000
85-68-7	Butyl benzyl phthalate	4410	U
56-55-3	Benz(a)anthracene	4410	3700J
218-01-9	Chrysene	4410	4000J
91-94-1	3,3'-Dichlorobenzidine	4410	U
117-81-7	Bis(2-ethylhexyl)phthalate	4410	U
117-84-0	Di-n-octyl phthalate	4410	U
205-99-2	Benzo(b)fluoranthene	4410	4700
207-08-9	Benzo(k)fluoranthene	4410	2300J
50-32-8	Benzo(a)pyrene	4410	3800J
193-39-5	Indeno(1,2,3-cd)pyrene	4410	1000J
53-70-3	Dibenz(a,h)anthracene	4410	400J
191-24-2	Benzo(g,h,i)perylene	4410	950J

ATC

p Jm

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11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ATTN: ART CURRIER

INVOICE: 53995

PROJECT NO: G9009.E.0104025, EAGLE PITCHER RESIDENTIAL

PO: O1LG-P0026

ENVIRONMETRICS, INC.

11401 Moog Drive
St. Louis, MO 63146
(314) 432-0550

SEMOVOLATILE COMP. BY GC/MS CAPILLARY COLUMN

METHOD 8270

PAGE Three

SAMPLE ID: 025-12

LAB ID: 9912/5599-011

PARENT ORDER NUMBER: 172870

QUANT FACTOR : 0.00

CAS NUMBER

PRACTICAL QUANTITATION
LIMIT
µg/KG

RESULTS
µg/KG

SURROGATE RECOVERY RESULTS		% RECOVERY
321-60-8	2-Fluorobiphenyl	117
367-12-4	2-Fluorophenol	66
4165-60-0	Nitrobenzene-d5	100
4165-62-2	Phenol-d5	74
1718-51-0	p-Terphenyl-d14	99
118-79-6	2,4,6-Tribromophenol	100

U = UNDETECTED

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DATE COLLECTED: 04/26/01 16:30
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ANALYST: J.K.

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SEMOVOLATILE COMP. BY GC/MS CAPILLARY COLUMN
METHOD 8270
PAGE One

SAMPLE ID: 025-14

LAB ID: 9912/5599-013

PARENT ORDER NUMBER: 172875

QUANT FACTOR : 85.60

<u>CAS NUMBER</u>		<u>PRACTICAL QUANTITATION LIMIT</u> <u>µg/KG</u>	<u>RESULTS</u> <u>µg/KG</u>
110-86-1	Pyridine	4280	U
62-75-9	n-Nitrosodimethylamine	856	U
62-53-3	Aniline	856	U
111-44-4	Bis(2-chloroethyl)ether	856	U
95-57-8	2-Chlorophenol	856	U
108-95-2	Phenol	856	U
541-73-1	1,3-Dichlorobenzene	856	U
106-46-7	1,4-Dichlorobenzene	856	U
95-50-1	1,2-Dichlorobenzene	856	U
100-51-6	Benzyl alcohol	856	U
108-60-1	2,2-oxybis(1-Chloropropane)	856	U
95-48-7	2-Methylphenol	856	U
67-72-1	Hexachloroethane	856	U
621-64-7	N-Nitrosodi-n-propylamine	856	U
106-44-5	4-Methylphenol	856	U
98-95-3	Nitrobenzene	856	U
78-59-1	Isophorone	856	U
88-75-5	2-Nitrophenol	856	U
105-67-9	2,4-Dimethylphenol	856	U
111-91-1	Bis(2-chloroethoxy)methane	856	U
120-83-2	2,4-Dichlorophenol	856	U
120-82-1	1,2,4-Trichlorobenzene	856	U
91-20-3	Naphthalene	856	U
65-85-0	Benzoic acid	856	U
106-47-8	4-Chloroaniline	856	U
87-68-3	Hexachlorobutadiene	856	U
91-57-6	2-Methylnaphthalene	856	180J
59-50-7	4-Chloro-3-methylphenol	856	U
77-47-4	Hexachlorocyclopentadiene	856	U
88-06-2	2,4,6-Trichlorophenol	856	U
95-95-4	2,4,5-Trichlorophenol	856	U
91-58-7	2-Chloronaphthalene	856	U
88-74-4	2-Nitroaniline	856	U
208-96-8	Acenaphthylene	856	U
131-11-3	Dimethyl phthalate	856	U
606-20-2	2,6-Dinitrotoluene	856	U
83-32-9	Acenaphthene	856	U

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11401 Moog Drive
St. Louis, MO 63146
(314) 432-0550

ATTN: ART CURRIER

INVOICE: 53995

PROJECT NO: G9009.E.0104025, EAGLE PITCHER RESIDENTIAL

PO: O1LG-P0026

SEMOVOLATILE COMP. BY GC/MS CAPILLARY COLUMN
METHOD 8270
PAGE Two

SAMPLE ID: 025-14

LAB ID: 9912/5599-013

PARENT ORDER NUMBER: 172875

QUANT FACTOR : 0.00

<u>CAS NUMBER</u>		<u>PRACTICAL QUANTITATION LIMIT</u> <u>µg/KG</u>	<u>RESULTS</u> <u>µg/KG</u>
99-09-2	3-Nitroaniline	856	U
51-28-5	2,4-Dinitrophenol	856	U
132-64-9	Dibenzofuran	856	U
121-14-2	2,4-Dinitrotoluene	856	U
100-02-7	4-Nitrophenol	856	U
86-73-7	Fluorene	856	U
7005-72-3	4-Chlorophenyl phenyl ether	856	U
84-66-2	Diethyl phthalate	856	U
100-01-6	4-Nitroaniline	856	U
534-52-1	4,6-Dinitro-2-methylphenol	856	U
86-30-6	N-Nitrosodiphenylamine	856	U
103-33-3	Azobenzene (1,2-Diphenylhydrazine)	856	U
101-55-3	4-Bromophenyl phenyl ether	856	U
118-74-1	Hexachlorobenzene	856	U
1912-24-9	Atrazine	856	U
87-86-5	Pentachlorophenol	856	U
85-01-8	Phenanthrene	856	330J
120-12-7	Anthracene	856	U
86-74-8	Carbazole	856	U
15972-60-8	Alachlor	856	U
84-74-2	Di-n-butyl phthalate	856	U
206-44-0	Fluoranthene	856	480J
92-87-5	Benzidine	856	U
129-00-0	Pyrene	856	410J
85-68-7	Butyl benzyl phthalate	856	U
56-55-3	Benz(a)anthracene	856	220J
218-01-9	Chrysene	856	260J
91-94-1	3,3'-Dichlorobenzidine	856	U
117-81-7	Bis(2-ethylhexyl)phthalate	856	U
117-84-0	Di-n-octyl phthalate	856	U
205-99-2	Benzo(b)fluoranthene	856	410J
207-08-9	Benzo(k)fluoranthene	856	150J
50-32-8	Benzo(a)pyrene	856	270J
193-39-5	Ideeno(1,2,3-cd)pyrene	856	90J
53-70-3	Dibenz(a,h)anthracene	856	U
191-24-2	Benzo(g,h,i)perylene	856	92J

HUG 123

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PO: O1LG-P0026

SEMIVOLATILE COMP. BY GC/MS CAPILLARY COLUMN
METHOD 8270
PAGE Three

SAMPLE ID: 025-14

LAB ID: 9912/5599-013

PARENT ORDER NUMBER: 172875

QUANT FACTOR : 0.00

<u>CAS NUMBER</u>	<u>PRACTICAL QUANTITATION LIMIT µg/KG</u>	<u>RESULTS µg/KG</u>	<u>% RECOVERY</u>
			95
321-60-8	2-Fluorobiphenyl		52
367-12-4	2-Fluorophenol		77
4165-60-0	Nitrobenzene-d5		61
4165-62-2	Phenol-d5		86
1718-51-0	p-Terphenyl-d14		
118-79-6	2,4,6-Tribromophenol		

SURROGATE RECOVERY RESULTS

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 04/26/01 17:03
DATE RECEIVED: 04/27/01
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ANALYST: J.K.

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ATTN: ART CURRIER

INVOICE: 53995
PROJECT NO: G9009.E.0104025, EAGLE PITCHER RESIDENTIAL
PO: O1LG-P0026

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PCB
METHOD 8082
PAGE One

SAMPLE ID: 025-07
LAB ID: 9912/5599-007
PARENT ORDER NUMBER: 172860

QUANT FACTOR : 0.00

<u>CAS NUMBER</u>		<u>PRACTICAL QUANTITATION LIMIT</u> <u>µg/KG</u>	<u>RESULTS</u> <u>µg/KG</u>
12674-11-2	A-1016	46	U
1104-28-2	A-1221	46	U
11141-16-5	A-1232	46	U
53469-21-9	A-1242	46	U
12672-29-6	A-1248	46	U
11097-69-1	A-1254	46	U
11096-82-5	A-1260	46	89.2

SURROGATE RECOVERY RESULTS

		<u>% RECOVERY</u>
2051-24-3	Decachlorobiphenyl (DCB)	4055
877-09-8	2,4,5,6-Tetrachloro-meta-xylene (TCMX)	69

U = UNDETECTED

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J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 04/26/01 15:17
DATE RECEIVED: 04/27/01
DATE ANALYZED: 05/10/01
ANALYST: J.K.

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11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ATTN: ART CURRIER

INVOICE: 53995
PROJECT NO: G9009.E.0104025, EAGLE PITCHER RESIDENTIAL
PO: O1LG-P0026

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PCB
METHOD 8082
PAGE One

SAMPLE ID: 025-08
LAB ID: 9912/5599-008
PARENT ORDER NUMBER: 172865

<u>CAS NUMBER</u>		QUANT FACTOR :	0.00
		PRACTICAL QUANTITATION LIMIT	<u>RESULTS</u>
		<u>µg/KG</u>	<u>µg/KG</u>
12674-11-2	A-1016	86	U
1104-28-2	A-1221	86	U
11141-16-5	A-1232	86	U
53469-21-9	A-1242	86	U
12672-29-6	A-1248	86	U
11097-69-1	A-1254	86	98.8
11096-82-5	A-1260	86	98.7

SURROGATE RECOVERY RESULTS

		% RECOVERY
2051-24-3	Decachlorobiphenyl (DCB)	1426
877-09-8	2,4,5,6-Tetrachloro-meta-xylene (TCMX)	76

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 04/26/01 16:00
DATE RECEIVED: 04/27/01
DATE ANALYZED: 05/10/01
ANALYST: J.K.

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11116 SOUTHTOWNE SQUARE, SUITE 303
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PCB
METHOD 8082
PAGE One

SAMPLE ID: 025-12

LAB ID: 9912/5599-011

PARENT ORDER NUMBER: 172870

QUANT FACTOR : 0.00

<u>CAS NUMBER</u>		<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULTS</u>
		<u>µg/KG</u>	<u>µg/KG</u>
12674-11-2	A-1016	88	U
1104-28-2	A-1221	88	U
11141-16-5	A-1232	88	U
53469-21-9	A-1242	88	U
12672-29-6	A-1248	88	U
11097-69-1	A-1254	88	U
11096-82-5	A-1260	88	54.6J

SURROGATE RECOVERY RESULTS

		<u>% RECOVERY</u>
2051-24-3	Decachlorobiphenyl (DCB)	3518
877-09-8	2,4,5,6-Tetrachloro-meta-xylene (TCMX)	62

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 04/26/01 16:30
DATE RECEIVED: 04/27/01
DATE ANALYZED: 05/10/01
ANALYST: J.K.

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ATTN: ART CURRIER

INVOICE: 53995
PROJECT NO: G9009.E.0104025, EAGLE PITCHER RESIDENTIAL
PO: O1LG-P0026

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PCB
METHOD 8082
PAGE One

SAMPLE ID: 025-14
LAB ID: 9912/5599-013
PARENT ORDER NUMBER: 172875

QUANT FACTOR : 0.00

<u>CAS NUMBER</u>		PRACTICAL QUANTITATION	<u>RESULTS</u> <u>µg/KG</u>
		LIMIT <u>µg/KG</u>	
12674-11-2	A-1016	43	U
1104-28-2	A-1221	43	U
11141-16-5	A-1232	43	U
53469-21-9	A-1242	43	U
12672-29-6	A-1248	43	U
11097-69-1	A-1254	43	U
11096-82-5	A-1260	43	U

SURROGATE RECOVERY RESULTS

		% RECOVERY
2051-24-3	Decachlorobiphenyl (DCB)	216
877-09-8	2,4,5,6-Tetrachloro-meta-xylene (TCMX)	64

U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL QUANTITATION LIMIT

DATE COLLECTED: 04/26/01 17:03
DATE RECEIVED: 04/27/01
DATE ANALYZED: 05/10/01
ANALYST: J.K.

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11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ATTN: ART CURRIER

ENVIRONMETRICS, INC.

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INVOICE: 53995
PO: O1LG-P0026
PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

ANALYSIS RESULTS

SAMPLE ID: 025-01
LAB ID: 9912005599-001
DATE COLLECTED: 04/26/01 15:00
DATE RECEIVED: 04/27/01

<u>TEST PERFORMED</u>	<u>METHOD OF ANALYSIS</u>	<u>RESULTS</u>	<u>ANALYST</u>
TOTAL ARSENIC	SW-846 6010A	14.0 B mg/Kg	05/10/01 J
TOTAL BARIUM	SW-846 6010A	352 D mg/Kg	
TOTAL CADMIUM	SW-846 6010A	4.46 mg/Kg	
TOTAL CHROMIUM	SW-846 6010A	33.4 mg/Kg	05/11/01 J
TOTAL LEAD	SW-846 6010A	1020 mg/Kg	05/10/01 J
TOTAL MERCURY	SW-846 7471A	0.8 J mg/Kg	
TOTAL SELENIUM	SW-846 6010A	<4.7 u mg/Kg	
TOTAL SILVER	SW-846 6010A	<0.6 u mg/Kg	

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B = Reported value is greater than the
Method Detection Limit (MDL) but less than
the Practical Quantitation Limit (PQL).

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ENVIRONMETRICS, INC

11401 Moog Driv
St. Louis, MO 6314
(314) 432-055

ATTN: ART CURRIER

INVOICE: 53995

PO: O1LG-P0026

PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

ANALYSIS RESULTS

SAMPLE ID: 025-02

LAB ID: 9912005599-002

DATE COLLECTED: 04/26/01 15:07

DATE RECEIVED: 04/27/01

<u>TEST PERFORMED</u>	<u>METHOD OF ANALYSIS</u>	<u>RESULTS</u>	<u>ANALYST</u>
TOTAL ARSENIC	SW-846 6010A	11.2 B 3 mg/Kg	05/10/01 J
TOTAL BARIUM	SW-846 6010A	303 3 mg/Kg	
TOTAL CADMIUM	SW-846 6010A	5.87 mg/Kg	
TOTAL CHROMIUM	SW-846 6010A	15.1 mg/Kg	05/11/01
TOTAL LEAD	SW-846 6010A	501 mg/Kg	05/10/01 J
TOTAL MERCURY	SW-846 7471A	0.3 3 mg/Kg	
TOTAL SELENIUM	SW-846 6010A	<4.7 4 mg/Kg	
TOTAL SILVER	SW-846 6010A	<0.6 4 mg/Kg	

HJC
12 Jun 01

B = Reported value is greater than the
Method Detection Limit (MDL) but less than
the Practical Quantitation Limit (PQL).

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ENVIRONMETRICS, INC.

11401 Moog Drive
St. Louis, MO 63146
(314) 432-0550

ATTN: ART CURRIER

INVOICE: 53995
PO: O1LG-P0026
PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

ANALYSIS RESULTS

SAMPLE ID: 025-03
LAB ID: 9912005599-003
DATE COLLECTED: 04/26/01 15:12
DATE RECEIVED: 04/27/01

<u>TEST PERFORMED</u>	<u>METHOD OF ANALYSIS</u>	<u>RESULTS</u>	<u>ANALYST</u>
TOTAL ARSENIC	SW-846 6010A	9.8 B mg/Kg	05/10/01 J
TOTAL BARIUM	SW-846 6010A	357 B mg/Kg	
TOTAL CADMIUM	SW-846 6010A	5.64 mg/Kg	
TOTAL CHROMIUM	SW-846 6010A	14.2 mg/Kg	05/11/01 J
TOTAL LEAD	SW-846 6010A	1100 mg/Kg	05/10/01 J
TOTAL MERCURY	SW-846 7471A	0.6 B mg/Kg	
TOTAL SELENIUM	SW-846 6010A	<4.7 C mg/Kg	
TOTAL SILVER	SW-846 6010A	<0.6 D mg/Kg	

HQG
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B = Reported value is greater than the
Method Detection Limit (MDL) but less than
the Practical Quantitation Limit (PQL).

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ATTN: ART CURRIER

INVOICE: 53995
PO: O1LG-P0026
PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

ENVIRONMETRICS, INC.

11401 Moog Drive
St. Louis, MO 63146
(314) 432-0550

ANALYSIS RESULTS

SAMPLE ID: 025-04
LAB ID: 9912005599-004
DATE COLLECTED: 04/26/01 15:59
DATE RECEIVED: 04/27/01

<u>TEST PERFORMED</u>	<u>METHOD OF ANALYSIS</u>	<u>RESULTS</u>	<u>ANALYST</u>
TOTAL ARSENIC	SW-846 6010A	6.43 $\frac{B}{J}$ mg/Kg	05/10/01 J.
TOTAL BARIUM	SW-846 6010A	185 $\frac{J}{J}$ mg/Kg	
TOTAL CADMIUM	SW-846 6010A	2.97 $\frac{B}{J}$ mg/Kg	
TOTAL CHROMIUM	SW-846 6010A	11.6 mg/Kg	05/11/01 .
TOTAL LEAD	SW-846 6010A	511 mg/Kg	05/10/01 -
TOTAL MERCURY	SW-846 7471A	0.7 $\frac{J}{J}$ mg/Kg	
TOTAL SELENIUM	SW-846 6010A	<4.7 $\frac{U}{U}$ mg/Kg	
TOTAL SILVER	SW-846 6010A	<0.6 $\frac{U}{U}$ mg/Kg	

140G
10 Jun 01

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TETRA TECH EM, INC.
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ST. LOUIS, MO 63123

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St. Louis, MO 63146
(314) 432-0550

INVOICE: 53995
PO: O1LG-P0026
PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

ANALYSIS RESULTS

SAMPLE ID: 025-05
LAB ID: 9912005599-005
DATE COLLECTED: 04/26/01 15:55
DATE RECEIVED: 04/27/01

<u>TEST PERFORMED</u>	<u>METHOD OF ANALYSIS</u>	<u>RESULTS</u>	<u>ANALYST</u>
TOTAL ARSENIC	SW-846 6010A	17.4 ^{B/1} mg/Kg	05/10/01 J.
TOTAL BARIUM	SW-846 6010A	302 ^B mg/Kg	
TOTAL CADMIUM	SW-846 6010A	33.4 mg/Kg	
TOTAL CHROMIUM	SW-846 6010A	16.2 mg/Kg	05/11/01 J.
TOTAL LEAD	SW-846 6010A	1163 mg/Kg	05/10/01 J
TOTAL MERCURY	SW-846 7471A	2.1 ^B mg/Kg	
TOTAL SELENIUM	SW-846 6010A	<4.7 ^B mg/Kg	
TOTAL SILVER	SW-846 6010A	<0.6 ^B mg/Kg	

1+UG
12 Jun 01

B = Reported value is greater than the
Method Detection Limit (MDL) but less than
the Practical Quantitation Limit (PQL).

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

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11401 Moog Drive
St. Louis, MO 63146
(314) 432-0550

ATTN: ART CURRIER

INVOICE: 53995
PO: O1LG-P0026
PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

ANALYSIS RESULTS

SAMPLE ID: 025-06
LAB ID: 9912005599-006
DATE COLLECTED: 04/26/01 15:18
DATE RECEIVED: 04/27/01

<u>TEST PERFORMED</u>	<u>METHOD OF ANALYSIS</u>	<u>RESULTS</u>	<u>ANALYST</u>
TOTAL ARSENIC	SW-846 6010A	17.4 B J mg/Kg	05/10/01 J.
TOTAL BARIUM	SW-846 6010A	219 J mg/Kg	
TOTAL CADMIUM	SW-846 6010A	2.33 B J mg/Kg	
TOTAL CHROMIUM	SW-846 6010A	22.5 mg/Kg	05/11/01 T.
TOTAL LEAD	SW-846 6010A	757 mg/Kg	05/10/01
TOTAL MERCURY	SW-846 7471A	0.9 J mg/Kg	
TOTAL SELENIUM	SW-846 6010A	<4.7 4 mg/Kg	
TOTAL SILVER	SW-846 6010A	<0.6 u mg/Kg	

H06
12 Jun 01

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Method Detection Limit (MDL) but less than
the Practical Quantitation Limit (PQL).

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ATTN: ART CURRIER

INVOICE: 53995
PO: O1LG-P0026
PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

ENVIRONMETRICS, INC.

11401 Moog Drive
St. Louis, MO 63141
(314) 432-0556

ANALYSIS RESULTS

SAMPLE ID: 025-07
LAB ID: 9912005599-007
DATE COLLECTED: 04/26/01 15:17
DATE RECEIVED: 04/27/01

<u>TEST PERFORMED</u>	<u>METHOD OF ANALYSIS</u>	<u>RESULTS</u>	<u>ANALYST</u>
TCLP LEAD	SW-846 1311/6010A	1.22 mg/L	05/07/01 J
TOTAL ARSENIC	SW-846 6010A	20.0 B T mg/Kg	05/10/01 J
TOTAL BARIUM	SW-846 6010A	416 T mg/Kg	
TOTAL CADMIUM	SW-846 6010A	2.54 B T mg/Kg	
TOTAL CHROMIUM	SW-846 6010A	24.8 mg/Kg	05/11/01 J
TOTAL LEAD	SW-846 6010A	3394 mg/Kg	05/10/01 J
TOTAL MERCURY	SW-846 7471A	2.0 T mg/Kg	
TOTAL SELENIUM	SW-846 6010A	<4.7 U mg/Kg	
TOTAL SILVER	SW-846 6010A	<0.6 U mg/Kg	
PH	SW-846 9045	6.950	05/01/01 M

WJ
12 Jun 01

B = Reported value is greater than the
Method Detection Limit (MDL) but less than
the Practical Quantitation Limit (PQL).

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ATTN: ART CURRIER

INVOICE: 53995
PO: O1LG-P0026
PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

ENVIRONMETRICS, INC.

11401 Moog Drive
St. Louis, MO 63146
(314) 432-0550

ANALYSIS RESULTS

SAMPLE ID: 025-08
LAB ID: 9912005599-008
DATE COLLECTED: 04/26/01 16:00
DATE RECEIVED: 04/27/01

<u>TEST PERFORMED</u>	<u>METHOD OF ANALYSIS</u>	<u>RESULTS</u>	<u>ANALYST</u>
TCLP LEAD	SW-846 1311/6010A	3.88 mg/L	05/07/01 J.
TOTAL ARSENIC	SW-846 6010A	21.9 B J mg/Kg	05/10/01 J.
TOTAL BARIUM	SW-846 6010A	311 J mg/Kg	
TOTAL CADMIUM	SW-846 6010A	4.76 mg/Kg	
TOTAL CHROMIUM	SW-846 6010A	20.3 mg/Kg	05/11/01 J.
TOTAL LEAD	SW-846 6010A	5771 mg/Kg	05/10/01 J.
TOTAL MERCURY	SW-846 7471A	0.7 J mg/Kg	
TOTAL SELENIUM	SW-846 6010A	<4.7 U mg/Kg	
TOTAL SILVER	SW-846 6010A	<0.6 U mg/Kg	
PH	SW-846 9045	7.310	05/01/01 M

HJB
12 Jun 01

B = Reported value is greater than the
Method Detection Limit (MDL) but less than
the Practical Quantitation Limit (PQL).

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ATTN: ART CURRIER

INVOICE: 53995
PO: O1LG-P0026
PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

ENVIRONMETRICS, INC.

11401 Moog Drive
St. Louis, MO 63146
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ANALYSIS RESULTS

SAMPLE ID: 025-10
LAB ID: 9912005599-009
DATE COLLECTED: 04/26/01 16:00
DATE RECEIVED: 04/27/01

<u>TEST PERFORMED</u>	<u>METHOD OF ANALYSIS</u>	<u>RESULTS</u>	<u>ANALYST</u>
TOTAL ARSENIC	SW-846 6010A	16.9 B mg/Kg	05/10/01 J.
TOTAL BARIUM	SW-846 6010A	651 B mg/Kg	
TOTAL CADMIUM	SW-846 6010A	6.38 mg/Kg	
TOTAL CHROMIUM	SW-846 6010A	30.6 mg/Kg	05/11/01 J.
TOTAL LEAD	SW-846 6010A	4074 mg/Kg	05/10/01 J.
TOTAL MERCURY	SW-846 7471A	0.4 B mg/Kg	
TOTAL SELENIUM	SW-846 6010A	<4.7 U mg/Kg	
TOTAL SILVER	SW-846 6010A	<0.6 U mg/Kg	

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12 Jun 01

B = Reported value is greater than the
Method Detection Limit (MDL) but less than
the Practical Quantitation Limit (PQL).

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ST. LOUIS, MO 63123

ATTN: ART CURRIER

ENVIRONMETRICS, INC.

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St. Louis, MO 63146
(314) 432-0550

INVOICE: 53995
PO: O1LG-P0026
PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

ANALYSIS RESULTS

SAMPLE ID: 025-11
LAB ID: 9912005599-010
DATE COLLECTED: 04/26/01 16:30
DATE RECEIVED: 04/27/01

<u>TEST PERFORMED</u>	<u>METHOD OF ANALYSIS</u>	<u>RESULTS</u>	<u>ANALYST</u>
TOTAL ARSENIC	SW-846 6010A	11.9 B ^J mg/Kg	05/10/01 J.
TOTAL BARIUM	SW-846 6010A	249 J mg/Kg	
TOTAL CADMIUM	SW-846 6010A	5.51 mg/Kg	
TOTAL CHROMIUM	SW-846 6010A	22.5 mg/Kg	05/11/01 T.
TOTAL LEAD	SW-846 6010A	1609 mg/Kg	05/10/01 C.
TOTAL MERCURY	SW-846 7471A	1.5 J mg/Kg	
TOTAL SELENIUM	SW-846 6010A	<4.7 u mg/Kg	
TOTAL SILVER	SW-846 6010A	<0.6 u mg/Kg	

HVE
12 Jan 01

B = Reported value is greater than the
Method Detection Limit (MDL) but less than
the Practical Quantitation Limit (PQL).

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ATTN: ART CURRIER

INVOICE: 53995
PO: O1LG-P0026
PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

ENVIRONMETRICS, INC

11401 Moog Driv
St. Louis, MO 6314
(314) 432-055

ANALYSIS RESULTS

SAMPLE ID: 025-12
LAB ID: 9912005599-011
DATE COLLECTED: 04/26/01 16:30
DATE RECEIVED: 04/27/01

<u>TEST PERFORMED</u>	<u>METHOD OF ANALYSIS</u>	<u>RESULTS</u>	<u>ANALYST</u>
TCLP LEAD	SW-846 1311/6010A	0.384 mg/L	05/07/01 J
TOTAL ARSENIC	SW-846 6010A	12.1 B mg/Kg	05/10/01 J
TOTAL BARIUM	SW-846 6010A	254 3 mg/Kg	
TOTAL CADMIUM	SW-846 6010A	4.74 mg/Kg	
TOTAL CHROMIUM	SW-846 6010A	15.9 mg/Kg	05/11/01 J
TOTAL LEAD	SW-846 6010A	1993 mg/Kg	05/10/01 J
TOTAL MERCURY	SW-846 7471A	1.5 3 mg/Kg	
TOTAL SELENIUM	SW-846 6010A	<4.7 4 mg/Kg	
TOTAL SILVER	SW-846 6010A	<0.6 4 mg/Kg	
PH	SW-846 9045	7.550	05/01/01 M

HOG
Jun 4
12

B = Reported value is greater than the
Method Detection Limit (MDL) but less than
the Practical Quantitation Limit (PQL).

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ATTN: ART CURRIER

ENVIRONMETRICS, INC.

11401 Moog Drive
St. Louis, MO 63146
(314) 432-0550

INVOICE: 53995
PO: O1LG-P0026
PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

ANALYSIS RESULTS

SAMPLE ID: 025-13
LAB ID: 9912005599-012
DATE COLLECTED: 04/26/01 17:00
DATE RECEIVED: 04/27/01

<u>TEST PERFORMED</u>	<u>METHOD OF ANALYSIS</u>	<u>RESULTS</u>	<u>ANALYST</u>
TOTAL ARSENIC	SW-846 6010A	14.1 B mg/Kg	05/10/01 J
TOTAL BARIUM	SW-846 6010A	306 B mg/Kg	
TOTAL CADMIUM	SW-846 6010A	4.56 mg/Kg	
TOTAL CHROMIUM	SW-846 6010A	15.1 mg/Kg	05/11/01 T
TOTAL LEAD	SW-846 6010A	1280 mg/Kg	05/10/01 J
TOTAL MERCURY	SW-846 7471A	0.7 B mg/Kg	
TOTAL SELENIUM	SW-846 6010A	<4.7 B mg/Kg	
TOTAL SILVER	SW-846 6010A	<0.6 B mg/Kg	

H OE
12 Jun - P1

B = Reported value is greater than the
Method Detection Limit (MDL) but less than
the Practical Quantitation Limit (PQL).

TETRA TECH EM, INC.
11116 SOUTHTOWNE SQUARE, SUITE 303
ST. LOUIS, MO 63123

ATTN: ART CURRIER

ENVIRONMETRICS, INC

11401 Moog Driv
St. Louis, MO 6314
(314) 432-055

INVOICE: 53995
PO: O1LG-P0026
PROJECT NO: G9009.E. 0104025, EAGLE PITCHER RESIDENTIAL

ANALYSIS RESULTS

SAMPLE ID: 025-14
LAB ID: 9912005599-013
DATE COLLECTED: 04/26/01 17:03
DATE RECEIVED: 04/27/01

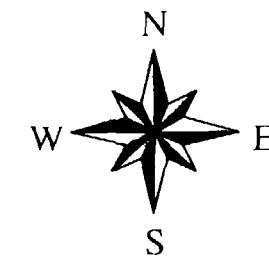
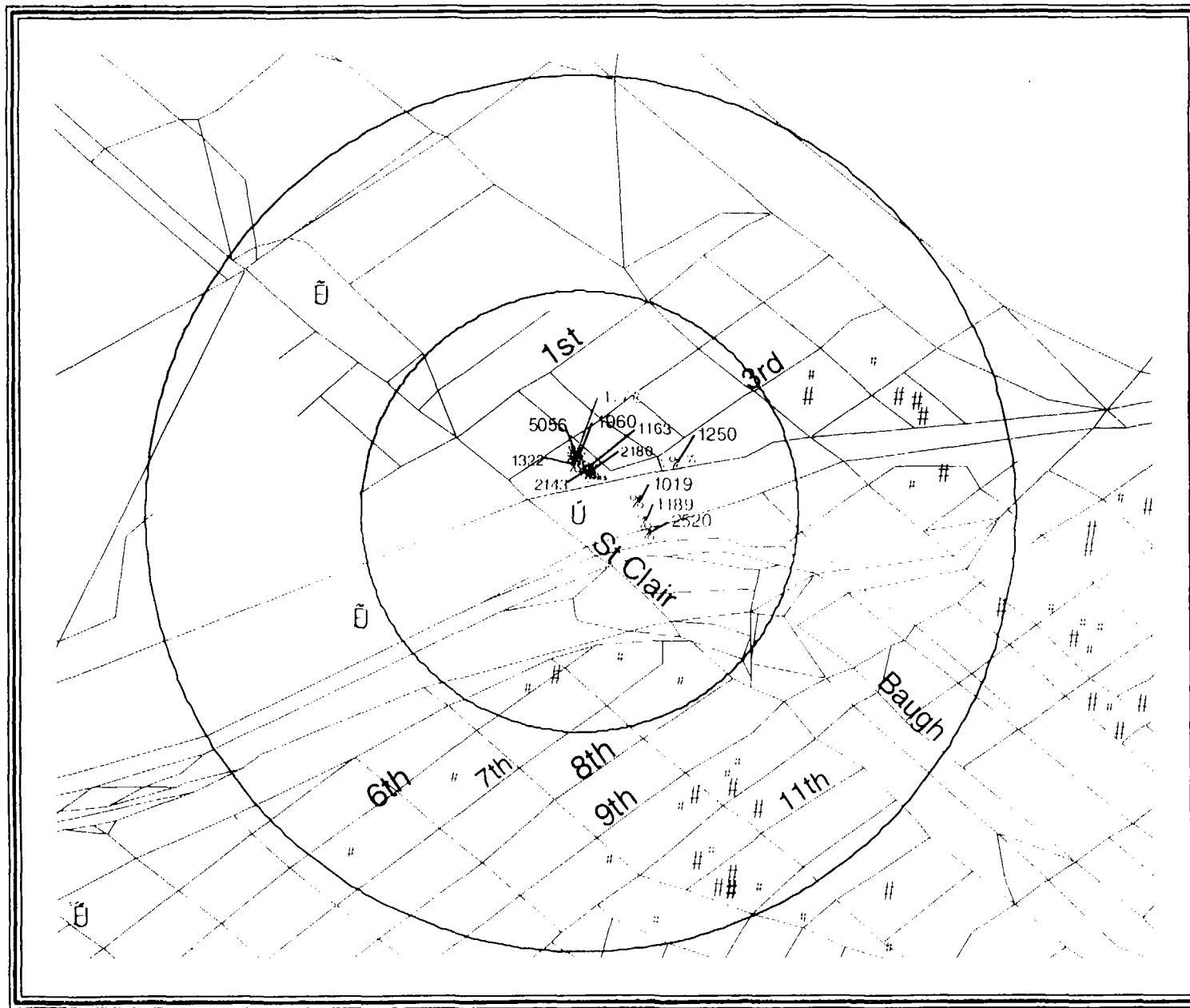
<u>TEST PERFORMED</u>	<u>METHOD OF ANALYSIS</u>	<u>RESULTS</u>	<u>ANALYST</u>
TCLP LEAD	SW-846 1311/6010A	0.138 mg/L	05/07/01 C
TOTAL ARSENIC	SW-846 6010A	12.2 B-3 mg/Kg	05/10/01 C
TOTAL BARIUM	SW-846 6010A	115 J mg/Kg	
TOTAL CADMIUM	SW-846 6010A	1.47 B-4 mg/Kg	
TOTAL CHROMIUM	SW-846 6010A	7.71 mg/Kg	05/11/01 C
TOTAL LEAD	SW-846 6010A	862 mg/Kg	05/10/01 C
TOTAL MERCURY	SW-846 7471A	0.3 J mg/Kg	
TOTAL SELENIUM	SW-846 6010A	<4.7 Y mg/Kg	
TOTAL SILVER	SW-846 6010A	<0.6 Y mg/Kg	
PH	SW-846 9045	6.310	05/01/01 M

*TM
WE
12 Jun 01*

B = Reported value is greater than the
Method Detection Limit (MDL) but less than
the Practical Quantitation Limit (PQL).

APPENDIX C
IDPH SITE INVESTIGATION DATA MAP
(One Sheet)

Site 118 - Eagle Picher with Elevated Blood Lead Levels



Legend	
	1/4 and 1/2 mile radii
	PbB > 10 mcg/dl
#	10 - 14.99
##	15 - 45
	Study Area Roads
1st Phase Laboratory Results	
0 - 499	
500 - 999	
1000 - 30000	
2nd Phase Laboratory Results	
0 - 499	
500 - 999	
1000 - 40000	
	Industry locations

0.5

0

0.5

1 Miles